IPRM' 10 Conference At-A-Glance

Monday, May 31	Tuesday, June 1		Wednesday, June 2		Thursday, June 3		Friday, June 4	
	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
	Opening Remarks (Kagawa International Conference Hall) *8:15- 8:30*							
	PL: Plenary Session (Kagawa International Conference Hall) *8:30-10:30*		**GP: CSW General Plenary Session** (Main Hall) *8:30-10:00*		**ThA1:** **Integrated Light Sources** *8:45-10:00*		**FrA1:** **Integrated Receivers and Related Components** *8:30-10:00*	**FrB1:** **Advanced Heteroepitaxy** *8:30-10:00*
	Coffee Break *10:30-11:00*		Coffee Break *10:00-10:30*		Coffee Break *10:00-10:30*		Coffee Break *10:00-10:30*	
	TuA2: **Quantum Dot and Nanostructure Devices** *11:00-12:30*	**TuB2:** **Submicron III-V MOS** *11:00-12:30*	**WeA2:** **Sb-Based Alloys and Heterostructures** *10:30-12:00*	**WeB2:** **Toward THz** *10:30-12:00*	**ThA2:** **Photodetectors** *10:30-12:00*	**ThB2:** **HEMT for MMIC** *10:30-12:00*	**FrA2:** **Photonic Crystal Devices** *10:30-12:00*	**FrB2:** **FET for Logic** *10:30-12:00*
Registration *12:30-18:00*	Lunch *12:30-14:00*		Lunch *12:00-13:30*		**Excursion**		**Closing** (Kagawa International Conference Hall) *12:00-12:30*	
Short Course A (Meeting Room 61) *13:30-15:00*	**TuA3:** **Lasers and Modulators** *14:00-15:30*	**TuB3:** **Growth and Characterization of III-V** *14:00-15:45*	**WeA3:** **High-Speed Switches** *13:30-15:00*	**WeB3:** **Growth and Characterization of Nitride** *13:30-15:00*				
Coffee Break *15:00-16:00*	Coffee Break *15:30-16:00*		Coffee Break *15:00-15:30*					
Short Course B (Meeting Room 61) *16:00-17:30*	**TuA4:** **Advanced Epitaxy for Nanostructures** *16:00-17:30*	**TuB4:** **HBT** *16:00-17:45*	**Poster Viewing** (Meeting Room 62-64) *15:30-18:00*					
Welcome Reception (Big Tent Plaza) *18:00-19:30*			**Rump Session** (Kagawa International Conference Hall) *19:00-20:30*		**Banquet** (ANA Hotel Clement Takamatsu) *18:30-20:00*			

Room A : Kagawa International Conference Hall / Room B : Meeting Room 61

Plenary Session - Tuesday, 1 June 2010

Kagawa International Conference Hall, Room A

8:30 am - 10:30 am

Plenary Session

Presiders: T. Enoki, NTT Photonics Laboratories, Japan
Y. Nakano, The University of Tokyo

8:15 am - 8:30 am Opening Remarks

8:30 am - 9:15 am
PL1
Convergence of III-V Compound and Si Technologies : Photonic-Electronic Convergence
H. Yonezu, Y. Furukawa and A. Wakahara, Toyohashi University of Technology, Toyohashi, Japan

9:15 am - 10:00 am
PL2
The DARPA COSMOS Program: The Convergence of InP and Silicon CMOS Technologies for High-Performance Mixed-Signal
S. Raman[1], T.-H. Chang[2], C.L. Dohrman[2] and M.J. Rosker[1], [1] Defense Advanced Research Projects Agency, Arlington, USA and [2] Booz Allen Hamilton Incorporated, Arlington, USA

Oral Sessions - Tuesday, 1 June 2010

Room A
11:00 am -12:30 pm
TuA2: Quantum Dot and Nanostructure Devices
Presider: J.-I. Chyi (National Central University)

11:00 am - 11:30 am (Invited)
TuA2-1
Nanowires for Quantum Optics
N. Akopian[1], E. Bakkers[1], J.C. Harmand[2], R. Heeres[1], M. v Kouwen[1], G. Patriarche[2], M.E. Reimer[1], M. v Weert[1], L. Kouwenhoven[1] and V. Zwiller[1], *[1] Delft University of Technology, Delft, The Netherlands and [2] CNRS, Maroussis, France*

11:30 am - 11:45 am
TuA2-2
Selective-Area MOVPE Growth and Optical Properties of Single InAsP Quantum Dots Embedded in InP NWs
Y. Kobayashi[1], J. Motohisa[1], K. Tomioka[2], S. Hara[1], K. Hiruma[1] and T. Fukui[1], *[1] Hokkaido University, Sapporo, Japan and [2] PRESTO-JST, Kawaguchi, Japan*

11:45 am - 12:15 pm (Invited)
TuA2-3
InAs/InP QDs Broadband LED Using Selective MOVPE Growth and Double-Cap Procedure
K. Shimomura, Y. Suzuki, Y. Saito and F. Kawashima, *Sophia University, Tokyo, Japan*

12:15 pm - 12:30 pm
TuA2-4
Temperature sensitivity of 1.5μm (100) InAs/InP-based Quantum Dot Lasers
S.A. Sayid[1], I.P. Marko[1], S.J. Sweeney[1] and P. Poole[2], *[1] University of Surrey, Surrey, UK and [2] Institute for Microstructural Sciences, Canada*

Room B
11:00 am -12:30 pm
TuB2: Submicron III-V MOS
Presider: E. Chang (National Chiao Tung University)

11:00 am - 11:30 am (Invited)
TuB2-1
III-V MOSFETs: Scaling Laws, Scaling Limits, Fabrication Processes
M.J.W. Rodwell[1], U. Singisetti[1], M. Wistey[1,2], G.J. Burek[1], A. Carter[1], A. Baraskar[1], J. Law[1], B.J. Thibeault[1], E.J. Kim[3], B. Shin[3], Y.-J. Lee[4], S. Steiger[5], S. Lee[5], H. Ryu[5], Y. Tan[5], G. Hegde[5], L. Wang[6], E. Chagarov[6], A.C. Gossard[1], W. Frensley[7], A. Kummel[6], C. Palmstrøm[1], P.C. McIntyre[3], T. Boykin[8], G. Klimek[5] and P. Asbeck[6], *[1] University of California, Santa Barbara, Santa Barbara, USA, [2] University of Notre Dame, USA, [3] Stanford University, USA, [4] Intel Corporation, USA, [5] Purdue University, USA, [6] University of California, San Diego, San Diego, USA, [7] University of Texas, Dallas, USA and [8] University of Alabama, Huntsville, USA*

11:30 am - 12:00 noon (Invited)
TuB2-2
Scaling of InGaAs MOSFETs into Deep-Submicron Regime
Y.Q. Wu, J.J. Gu and P.D. Ye, *Purdue University, West Lafayette, USA*

12:00 noon -12:15 pm
TuB2-3
Submicron InP/InGaAs Composite Channel MOSFETs with Selectively Regrown N^+-Source/Drain Buried in Channel Undercut
T. Kanazawa, K. Wakabayashi, H. Saito, R. Terao, T. Tajima, S. Ikeda, Y. Miyamoto and K. Furuya, *Tokyo Institute of Technology, Tokyo, Japan*

12:15 pm - 12:30 pm
TuB2-4
Fabrication and Characterization of 200-nm Self-Aligned $In_{0.53}Ga_{0.47}As$ MOSFET
A. Olivier[1], N. Wichmann[1], J.-J. Mo[1], A. Noudeviwa[1], Y. Roelens[1], L. Desplanque[1], X. Wallart[1], F. Danneville[1], G. Dambrine[1], S. Bollaert[1], F. Martin[2], O. Desplats[2], J. Saint-Martin[3], M. Shi[3], Y. Wang[4], M.P. Chauvat[4], P. Ruterana[4] and H. Maher[5], *[1] IEMN, Villeneuve d'Ascq, France, [2] CEA/LETI, Grenoble, France, [3] IEF, UMR CNRS, Orsay, France, [4] CIMAP, UMR CNRS, Caen, France and [5] OMMIC, Limeil-Brévannes, France*

Oral Sessions - Tuesday, 1 June 2010

Room A
14:00 pm - 15:30 pm
TuA3: Lasers and Modulators
Presider: K. Morito (Fujitsu Laboratories)

14:00 pm - 14:30 pm (Invited)
TuA3-1
Very-High-Bit-Rate Integrated Photonic Devices for Next-Generation Ethernet
K. Shinoda[1,2], S. Makino[1], T. Fukamachi[1,2], K. Adachi[1,2], Y. Lee[1,2], H. Hayashi[1], S. Tanaka[1,2], M. Aoki[1] and S. Tsuji[1,2], *[1] Hitachi, Ltd., Tokyo, Japan and [2] Photonics Electronics Technology Research Association, Tokyo, Japan*

14:30 pm - 14:45 pm
TuA3-2
40Gb/s SOA-Integrated EAM Using Cascaded Structure
T.-H. Wu, J.-P. Wu, H.-J. Yan and Y.-J. Chiu, *National Sun Yat-Sen University, Kaohsiung, Taiwan*

14:45 pm - 15:00 pm
TuA3-3
Chirp Optimization of 1550nm InAs/InP Quantum Dash Based Directly Modulated Lasers for 10Gb/s SMF Transmission up to 65Km
F. Lelarge, N. Chimot, B. Rousseau, F. Martin, R. Brenot and A. Accard, *Alcatel Thales III-V Lab, Marcoussis, France*

15:00 pm - 15:15 pm
TuA3-4
Ultra-Low Threshold 1490 nm Surface-Emitting BH-DFB Laser Diode with Integrated Monitor Photodiode
M. Moehrle, J. Kreissl, W.D. Molzow, G. Przyrembel, C. Wagner, A. Sigmund, L. Moerl and N. Grote, *Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institute, Berlin, Germany*

15:15 pm - 15:30 pm
TuA3-5
Thin-Film GaInAsP/InP Lateral Current Injection Type Fabry-Perot Laser -Improved Quantum Efficiency Operation-
H. Ito, T. Okumura, D. Kondo, N. Nishiyama and S. Arai, *Tokyo Institute of Technology, Tokyo, Japan*

Room B
14:00 pm - 15:45 pm
TuB3: Growth and Characterization of III-V
Presider: D. Ehrentraut (Tohoku University)

14:00 pm - 14:30 pm (Invited)
TuB3-1
Antimonide Based Infrared Materials: Developments in InSb and GaSb Substrate Technologies
M.J. Furlong, R. Martinez, S. Amirhaghi and B.Smith, *Wafer Technology Limited, Milton Keynes, UK*

14:30 pm - 15:00 pm (Invited)
TuB3-2
Effect of Gravity on the Growth of Ternary Alloy Semiconductor Bulk Crystals
Y. Hayakawa, *Shizuoka University, Shizuoka, Japan*

15:00 pm - 15:15 pm
TuB3-3
Growth of Large Platy InGaAs Crystals and Fabrication of Semiconductor Laser Diodes
K. Kinoshita[1], S. Yoda[1], H. Aoki[2], T. Hosokawa[2], S. Yamamoto[2], M. Matsushima[2], M. Arai[3], Y. Kawaguchi[3], Y. Kondo[3] and F. Kano[3], *[1] Japan Aerospace Exploration Agency, Tsukuba, Japan, [2] Furuuchi Chemical Company Limited, Ibaraki, Japan and [3] NTT Corporation, Atsugi, Japan*

15:15 pm - 15:30 pm
TuB3-4
Optical and Electrical Properties of InP Porous Structures Formed on p-n Substrates
H. Okazaki, T. Sato, N. Yoshizawa and T. Hashizume, *Hokkaido University, Sapporo, Japan*

15:30 pm - 15:45 pm
TuB3-5
Preparation of N-TYPE InP Substrates by Vertical Boat Growth
Y. Ishikawa, K. Kounoike, M. Nishioka, T. Kawase, K. Kaminaka and K. Nanbu, *Sumitomo Electric Industries Limited, Itami, Japan*

Oral Sessions - Tuesday, 1 June 2010

Room A
16:00 pm - 17:30 pm
TuA4: Advanced Epitaxy for Nanostructures
Presider: W. Stolz (Philipps-University Marburg)

16:00 pm - 16:30 pm (Invited)
TuA4-1
Fabrication of III-V Semiconductor Nanowires by SA-MOVPE and their Applications to Photonic and Photovoltaic Devices
T. Fukui, K. Tomioka, S. Hara, K. Hiruma and J. Motohisa,
Hokkaido University, Sapporo, Japan

16:30 pm - 16:45 pm
TuA4-2
Epitaxial III-V Planar Nanowires: Self-Aligned, High-Mobility and Transfer-Printable
S.A. Fortuna, R. Dowdy and X. Li, *University of Illinois at Urbana-Champaign, Urbana, USA*

16:45 pm - 17:00 pm
TuA4-3
RF-MBE Growth of InN/InGaN MQW Structures by DERI and their Characterization
T. Araki[1], H. Umeda[1], T. Yamaguchi[1], T. Sakamoto[1], E. Yoon[2] and Y. Nanishi[1,2], *[1] Ritsumeikan University, Shiga, Japan and [2] Seoul National University, Seoul, Korea*

17:00 pm - 17:30 pm (Invited)
TuA4-4
Selective Area Growth of III-V Semiconductors: From Fundamental Aspects to Device Structures
M. Sugiyama, *The University of Tokyo, Tokyo, Japan*

Room B
16:00 pm - 17:45 pm
TuB4: HBT
Presider: D. Scott (NGC)

16:00 pm - 16:15 pm
TuB4-1
Type-II InP/$GaAs_xSb_{1-x}$ DHBTs with Simultaneous F_T and F_{MAX} >340 GHz Fabricated by Contact Lithography
Y. Zeng, R. Flückiger, O. Ostinelli and C.R. Bolognesi,
ETH Zürich, Zürich, Switzerland

16:15 pm - 16:30 pm
TuB4-2
400 GHz F_{MAX} InP/GaAsSb HBT for Millimeter-Wave Applications
V. Nodjiadjim[1], M. Riet[1], A. Scavennec[1], P. Berdaguer[1], S. Piotrowicz[1], O. Jardel[1], J. Godin[1], P. Bove[2] and M. Lijadi[2],
[1] Alcatel-Thales III-V Lab, Marcoussis, France and [2] Picogiga International SAS, Courtaboeuf, France

16:30 pm - 16:45 pm
TuB4-3
InP DHBTs Having Sidewall and Lateral Collector Schottky Contacts
D. Cohen Elias, A. Gavrilov, S. Cohen, S. Kraus and D. Ritter, *Technion Israel Institute of Technology, Haifa, Israel*

16:45 pm - 17:00 pm
TuB4-4
Low Surface Recombination Velocity in InAlAs/InGaAsSb/InGaAs Double Heterojunction Bipolar Transistors
S.-Y. Wang[1], P.-Y. Chiang[1], C.-M. Chang[1], S.-H. Chen [1] and J.-I. Chyi [1,2], *[1]National Central University, Jhongli, Taiwan and [2] Academia Sinica, Taipei, Taiwan*

17:00 pm - 17:15 pm
TuB4-5
A 120-Gbit/s 520-mV_{PP} Multiplexer IC Using 1-μm Self-Aligned InP/InGaAs/InP DHBT with Emitter MESA Passivation Ledge
Y. Arayashiki, Y. Ohkubo, T. Matsumoto, T. Koji, Y. Amano, A. Takagi and Y. Matsuoka, *Anritsu Devices Company Limited, Atsugi, Japan*

17:15 pm - 17:30 pm
TuB4-6
Sensitivity of a 20-GS/s InP DHBT Latched Comparator
S. Kraus[1], R.E. Makon[2], I. Kallfass[2], R. Driad[2], M. Moyal[3] and D. Ritter[1], *[1] Technion - Israel Institute of Technology, Haifa, Israel, [2] Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany and [3] Intel Haifa Development Center, Haifa, Israel*

17:30 pm - 17:45 pm
TuB4-7
Reliability Study on InP/InGaAs Emitter-Base Junction for High-Speed and Low-Power InP HBT
Y.K. Fukai, K. Kurishima, N. Kashio and S. Yamahata,
NTT Corporation, Atsugi, Japan

General Plenary Session - Wednesday, 2 June 2010

Main Hall
8:30 am - 10:00 am
CSW General Plenary Session
Presiders: T. Enoki, NTT Photonics Laboratories, Japan
Y. Hirayama, Tohoku University, Japan
H. Itoh, Kagawa University, Japan

8:30 am - 9:00 am

GP1

Compound Semiconductor Markets: Current Status and Future Prospects Through 2013

A. Anwar, Strategy Analytics, UK

GaAs-based devices will continue to enable next generation wireless technologies, while InP will be at the forefront of future telecom network rollouts that will enable demand for high bandwidth applications, coupled with traffic demands from emerging 3G and 4G networks. While the market for GaN RF and power devices will still be at an early, GaN-based devices will be pivotal to the development of solid-state lighting markets. The collective market for compound semiconductor devices and related materials will grow to exceed $20 billion by 2013.

9:00 am - 9:30 am

GP2

How We Started Hi-Tech Research and Industries in Taiwan and Booming Now

C.Y. Chang, National Academy of Engineering, USA, National Chiao Tung University, Taiwan

Since 1960, we have started Hi-Tech research in silicon planar technology which was regarded as “the origin of VLSI” by Gordon Moore in 1965, and metal-oxide-semiconductor structures. In 1970, we have made LED, and continue to develop compound semiconductor devices and physics.

We have enjoyed good development in these areas. TSMC and UMCC are sharing more than 72% of world foundry share. GaN LED, HBT, Hemt production capacity are among the highest in the world. There are more than 600 MOCVD systems in Taiwan and will be 200 more by the end of the year. LCD industry is also booming now.

Finally, I will address more about why it was successful and what is the challenge in the future.

9:30 am - 10:00 am

GP3

Izumoring; A Strategy for Total Production of Rare Sugars

K. Izumori, Kagawa University, Japan

Rare sugars are monosaccharides that occur in small amounts as natural products. Izumoring is a strategy to produce all rare sugars from inexpensive D-glucose. Practically, this system has been shown to be able to produce all the rare sugars from the few monosaccharides abundant in nature. Potential applications of rare sugars and the development project in Kagawa will be introduced in the talk.

Oral Sessions - Wednesday, 2 June 2010

Room A
10:30 am - 12:00 noon
WeA2: Sb-Based Alloys and Heterostructures
Presider: T. Fukui (Hokkaido University)

10:30 am - 11:00 am (Invited)
WeA2-1
Advances in the Growth and Performance of Antimonide-Based Mid-Infrared Interband Cascade Lasers
W.W. Bewley, C.L. Canedy, C.S. Kim, M. Kim, J.R. Lindle, J. Abell, I. Vurgaftman and J.R. Meyer, *Naval Research Laboratory, Washington, USA*

11:00 am - 11:15 am
WeA2-2
InAsSb and InPSb Materials for Mid Infrared Photodetectors
D. Lackner[1], O.J. Pitts[1], M. Martine[1], Y.T. Cherng[1], P.M. Mooney[1], M.L.W. Thewalt[1], E. Plis[2] and S.P. Watkins[1], *[1] Simon Fraser University, Canada and [2] University of New Mexico*

11:15 am - 11:30 am
WeA2-3
Electronic Properties of the $Al_{0.56}In_{0.44}Sb/Ga_{0.5}In_{0.5}Sb$ Heterostructure
L. Desplanque[1], D. Vignaud[1], S. Godey[1], E. Cadio[1], P. Liu[2], H. Sellier[2] and X. Wallart[1], *[1] IEMN, Villeneuve d'Ascq, France and [2] Institut Néel, Grenoble, France*

11:30 am - 11:45 am
WeA2-4
Low Temperature Grown GaAsSb as Photoconductive Material near 1.06 μm
X. Wallart, C. Coinon, S. Plissard, S. Godey, O. Offranc, V. Magnin and J.F. Lampin, *UMR-CNRS 8520, Villeneuve d'Ascq, France*

11:45 am - 12:00 noon
WeA2-5
Zn-Doped InGaAs with High Carrier Concentration Enhanced by Sb Surfactant for Low Specific Contact Resistance
T. Sato, M. Mitsuhara, R. Iga, S. Kanazawa and Y. Inoue, *NTT Corporation, Atsugi, Japan*

Room B
10:30 am - 12:00 noon
WeB2: Toward THz
Presider: C. Bolognesi (ETH Zurich)

10:30 am - 10:45 am
WeB2-1
Sub 50 nm InP HEMT with fT = 586 GHz and Amplifier Circuit Gain at 390 GHz for Sub-Millimeter Wave Applications
R. Lai, X.B. Mei, S. Sarkozy, W. Yoshida, P.H. Liu, J. Lee, M. Lange, V. Radisic, K. Leong and W. Deal, *Northrop Grumman Aerospace Systems, Redondo Beach, USA*

10:45 am - 11:00 am
WeB2-2
High Performance InP mHEMTs on GaAs Substrate with Multiple Interconnect Layers
W. Ha, Z. Griffith, D.-H. Kim, P. Chen, M. Urteaga and B. Brar, *Teledyne Scientific and Imaging Company, Thousand Oaks, USA*

11:00 am - 11:15 am
WeB2-3
High Frequency Performance of Vertical InAs Nanowire MOSFET
E. Lind, M. Egard, S. Johansson, A.-C. Johansson, B.M. Borg, C. Thelander, K.-M. Persson, A.W. Dey and L.-E. Wernersson, *Lund University, Lund, Sweden*

11:15 am - 11:30 am
WeB2-4
Selective Undercut Etching for Ultra Narrow Mesa Structure in Vertical InGaAs Channel MISFET
H. Saito, Y. Miyamoto and K. Furuya, *Tokyo Institute of Technology, Tokyo, Japan*

11:30 am - 11:45 am
WeB2-5
RTD Oscillators at 430-460 GHz with High Output Power (~200 μW) Using Integrated Offset Slot Antennas
S. Suzuki[1], K. Hinata[1], M. Shiraishi[1], M. Asada[1], H. Sugiyama[2] and H. Yokoyama[2], *[1] Tokyo Institute of Technology, Tokyo, Japan and [2] NTT Photonics Laboratories, Atsugi, Japan*

11:45 am - 12:00 noon
WeB2-6
Monte Carlo Study of Strain Effect on High Field Electron Transport in InAs and InSb
H. Nishino, I. Kawahira, F. Machida, S. Hara and H.I. Fujishiro, *Tokyo University of Science, Chiba, Japan*

Oral Sessions - Wednesday, 2 June 2010

Room A
13:30 pm - 15:00 pm
WeA3: High-speed Switches
Presider: H.-G.Bach (Heinrich-Hertz-Institut)

13:30 pm - 14:00 pm (Invited)
WeA3-1
Integration Technologies for an 8x8 InP-Based Monolithic Tunable Optical Router with 40Gb/s Line Rate per Port
S.C. Nicholes, M.L. Mašanović, B. Jevremović, E. Lively, L.A. Coldren and D.J. Blumenthal, *University of California, Santa Barbara, Santa Barbara, USA*

14:00 pm - 14:15 pm
WeA3-2
A Monolithic Wavelength-Routing Switch using Double-Ring-Resonator-Coupled Tunable Lasers with Highly Reflective Mirrors
T. Segawa, S. Matsuo, T. Kakitsuka, Y. Shibata, T. Sato and R. Takahashi, *NTT Photonics Laboratories, Atsugi, Japan*

14:15 pm - 14:30 pm
WeA3-3
Monolithically-Integrated 8:1 SOA Gate Switch with Small Gain Deviation and Large Input Power Dynamic Range for WDM Signals
S. Tanaka, S.-H. Jeong, A. Uetake, S. Yamazaki and K. Morito, *Fujitsu Limited, Atsugi, Japan*

14:30 pm - 14:45 pm
WeA3-4
Intersubband Absorption Generation through Silicon Ion Implantation in Undoped INGaAs/AlAsSb Coupled Double Quantum Wells towards Monolithic Integration of Intersubband-Transition-Based All-Optical Switches
G.W. Cong, R. Akimoto, S. Gozu, T. Mozume, T. Hasama and H. Ishikawa, *National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

14:45 pm - 15:00 pm
WeA3-5
Room Temperature Picosecond Mode-Locked Pulse Generation from a 1.55µm VECSEL with an InGaAsN/GaAsN Fast Saturable Absorber Mirror
A. Khadour[1], S. Bouchoule[1], J. Decobert[2], J.C. Harmand[1] and J.L. Oudar[1], [1] *CNRS-UPR20, Marcoussis, France and* [2] *Alcatel III-V Lab, Marcoussis, France*

Room B
13:30 pm - 15:00 pm
WeB3: Growth and Characterization of Nitride
Presider: K. Kinoshita (JAXA)

13:30 pm - 14:00 pm (Invited)
WeB3-1
Ammonothermal Technology for Bulk Gallium Nitride Crystals
D. Ehrentraut and T. Fukuda, *Tohoku University, Sendai, Japan*

14:00 pm - 14:30 pm (Invited)
WeB3-2
Geometry Aspects Influencing the Growth of AlN Bulk Crystals
J. Wollweber, *Leibniz-Institute for Crystal Growth, Germany*

14:30 pm - 14:45 pm
WeB3-3
Hydride Vapor Phase Epitaxy of AlN at High Temperatures on Freestanding (0001)AlN Substrates
Y. Kumagai[1], J. Tajima[1], Y. Kubota[2], M. Ishizuki[3], R. Togashi[1], H. Murakami[1], T. Nagashima[2], K. Takada[2] and A. Koukitu[1], [1] *Tokyo University of Agriculture and Technology, Tokyo, Japan,* [2] *Tokuyama Corporation, Tsukuba, Japan and* [3] *Tokuyama Corporation, Tokyo, Japan*

14:45 pm - 15:00 pm
WeB3-4
Observation of Birefringence Distribution Caused by Residual Strain in Bulk C-Plane GaN Substrates
M. Fukuzawa, R. Kashiwagi and M. Yamada, *Kyoto Institute of Technology, Kyoto, Japan*

WeP2

InGaAsN as Absorber in APDs for 1.3 Micron Wavelength Applications

J.S. Ng[1], S.L. Tan[1], Y.L. Goh[1], C.H. Tan[1], J.P.R. David[1], J. Allam[2], S.J. Sweeney[2] and A.R. Adams[2], *[1] University of Sheffield, Sheffield, UK and [2] University of Surrey, Surrey, UK*

WeP4

Investigation of SiO_2 on AlGaAs Prepared by Liquid Phase Deposition

K.-W. Lee[1], J.-S. Huang[1], Y.-L. Lu[1], F.-M. Lee[2], H.-C. Lin[2], J.-J. Huang[2] and Y.-H. Wang[2], *[1] I-Shou University, Kaohsiung, Taiwan and [2] National Cheng-Kung University, Tainan, Taiwan*

WeP5

Comparison of the Photoluminescence Spectra between Quantum Well Structure and Quantum Dots Structure

M. Esaki, N. Inaba, A. Fukuda and H. Imai, *Japan Women's University, Tokyo, Japan*

WeP6

Synthesis of Cubic-GaN Nanoparticles Using the Na Flux Method - A Novel Use for the Ultra-High Pressure Apparatus -

F. Kawamura and T. Taniguchi, *National Institute for Materials Science, Tsukuba, Japan*

WeP7

AlN Bulk Single Crystal Growth on SiC and AlN Substrates by Sublimation Method

I. Nagai[1], T. Kato[1], T. Miura[1], H. Kamata[2], K. Naoe[2], K. Sanada[2] and H. Okumura[1], *[1] National Institute of Advanced Industrial Science and Technology, Japan and [2] Fujikura Limited, Japan*

WeP8

Carbon-Doped $In_xGa_{1-x}As_{1-y}Sb_y$ on InP Grown by Metal-Organic Chemical Vapor Deposition

T. Hoshi, H. Sugiyama, H. Yokoyama, K. Kurishima, M. Ida and S. Yamahata, *NTT Corporation, Atsugi, Japan*

WeP9

The Combination for Thermodynamic Model and Precursor State Used in GaAsSb/GaAs Multiple Quantum Wells Grown by Gas Source Molecular Beam Epitaxy

J.-M. Lin, L.-C. Chou and H.-H. Lin, *National Taiwan University, Taipei, Taiwan*

WeP10

Investigation of the Origin of InAs Dot Formation at the Growth Interrupted AlGaInAs Hetero-Interface Grown by MOVPE

T. Nagira, K. Ono and M. Takemi, *Mitsubishi Electric Corporation, Itami, Japan*

WeP11

Comparative Study of Spacer Layers for InAs Quantum Dot Stacks

T.W. Reenaas[1], P.E. Vullum[1], Y. Song[2], M. Sadeghi[2], S.F. Thomassen[1], R. Holmestad[1], S. Wang[2] and B.O. Fimland[1], *[1] Norwegian University of Science and Technology, Trondheim, Norway and [2] Chalmers University of Technology, Göteborg, Sweden*

WeP12

Quantum Dot Density Studies for Quantum Dot Intermediate Band Solar Cells

S.F. Thomassen, D. Zhou, S. Vitelli, M.G. Mayani, B.O. Fimland and T.W. Reenaas, *Norwegian University of Science and Technology, Trondheim, Norway*

WeP13

MOVPE Growth of InPN Films on InP(001) Substrates

Y. Seki[1], Y. Wang[1], Q.T. Thieu[1], S. Kuboya[1], S. Sanorpim[2] and K. Onabe[1], *[1] University of Tokyo, Kashiwa, Japan and [2] Chulalongkorn University, Bangkok, Thailand*

WeP14

Reduction of Surface Roughness of GaP on Si Substrate using Strained GaInP Interlayer by MOCVD

R. Nishio, S. Tanabe, R. Suzuki, K. Nemoto and T. Miyamoto, *Tokyo Institute of Technology , Yokohama, Japan*

WeP15

Selective Area Growth of InP on Nano-Patterned SiO_2/Si(100) Substrates by Molecular Beam Epitaxy

S. Hasegawa, A. Yamano, N.S. Ahn, N.G. Cha, T. Kanki, H. Tanaka and H. Asahi, *Osaka University, Osaka, Japan*

WeP16

Heteroepitaxial Growth of Indium Phosphide from Nano-Openings Made by Masking on a Si(001) Wafer

C. Junesand[1], W. Metaferia[1], F. Olsson[1], M. Avella[2], J. Jimenez[2], G. Pozina[3], L. Hultman[3] and S. Lourdudoss[1], [1] *KTH, Kista, Sweden,* [2] *University of Valladolid, Valladolid, Spain and* [3] *Linköping University, Linköping, Sweden*

WeP18

High Temperature Operation and Reduced Thresholds in Ring-Based Quantum Cascade Lasers

E. Mujagić[1], C. Schwarzer[1], M. Nobile[1], A. Detz[1], S. Ahn[1], W. Schrenk[1], J. Chen[2,3], C. Gmachl[2] and G. Strasser[1,4], [1] *Vienna University of Technology , Vienna, Austria,* [2] *Princeton University, Princeton, USA,* [3] *Chinese Academy of Sciences, Shanghai, China and* [4] *State University of New York, Buffalo, New York, USA*

WeP19

MOVPE Regrowth Steps for High Power Quantum Cascade Lasers

O. Parillaud, M. Carras, G. Maisons, B. Simozrag, M. Garcia, X. Marcadet, F. Alexandre, O. Patard, F. Pommereau and O. Drisse, *Alcatel Thales III-V Lab, Palaiseau, France*

WeP20

Proposal of InAlGaAs/InAlAs/InP 1x2 Cross-Point Optical Switch with Mode-Spot Modulation MMI Waveguide and 45° TIR Mirror

S. Fujimoto, Y. Ueda, K. Kambayashi and K. Utaka, *Waseda University, Tokyo, Japan*

WeP21

Switching Characteristics in Variable Refractive-Index Waveguide Array by Carrier Injection

T. Sugio, T. Aoyagi, T. Tanimura, Y. Murakami and K. Shimomura, *Sophia University, Tokyo, Japan*

WeP22

All-Optical Switch Using InAs Quantum Dots in a Vertical Cavity

C.Y. Jin[1], O. Kojima[1], T. Inoue[1], S. Ohta[1], T. Kita[1], O. Wada[1], M. Hopkinson[2] and K. Akahane[3], [1] *Kobe University, Kobe, Japan,* [2] *University of Sheffield, Sheffield, UK and* [3] *National Institute of Information and Communications Technology, Tokyo, Japan*

WeP23

Low Driving Voltage Spatial Light Modulator Fabricated by Ultrahigh-Purity GaAs

M.S. Kayastha, I. Matsunami, D.P. Sapkota, M. Takahashi and K. Wakita, *Chubu University, Kasugai, Japan*

WeP24

Enhanced TE/TM Electro-Optic Effect in Vertically Coupled InGaAs Quantum Dots

K.Y. Chuang, C.Y. Kuo, T.E. Tzeng, D.J.Y. Feng and T.S. Lay, *National Sun Yat-Sen University, Kaohsiung, Taiwan*

WeP25

Dependence of Threshold Current Density on Quantum Well Composition for Compressive Strained-Layer $Al_xGa_yIn_{1-x-y}As$ Lasers

D.P. Sapkota, M.S. Kayastha and K. Wakita, *Chubu University, Aichi, Japan*

WeP26

Thermal Performance of 1.55μm InGaAlAs Quantum Well Buried Heterostructure Lasers

S.A. Sayid[1], I.P. Marko[1], P.J. Cannard[2], X. Chen[2], L.J. Rivers[2], I.F. Lealman[2] and S.J. Sweeney, [1] *University of Surrey, Surrey, UK and* [2] *CIP Technologies, UK*

WeP27

Investigation of Regrowth Interface Quality of AlGaInAs/InP Buried Heterostructure Lasers

Y. Takino, M. Shirao, T. Sato, N. Nishiyama and S. Arai, *Tokyo Institute of Technology, Tokyo, Japan*

WeP28

Investigation of Bonding Strength and Photoluminescence Properties of InP/Si Surface Activated Bonding

S. Kondo, T. Okumura, R. Osabe, N. Nishiyama and S. Arai, *Tokyo Institute of Technology, Tokyo, Japan*

WeP29

Selective Etching and Polymer Deposition on InP Surface in CH_4/H_2-RIE

N. Yamamoto, *NTT Corporation, Atsugi, Japan*

WeP30

Characterization on the 1064 nm InGaAs/GaAs Quantum-Well Laser Diode with Thermal Vias

H.C. Tseng[1], A.H. Wu[1], C.T. Wan[2], Y.K. Su[2], C. Hu[3] and S. Tsau[3], [1] *Kun Shan University, Taiwan,* [2] *National Cheng Kung University, Taiwan and* [3] *ITRI, Taiwan*

WeP31

New Approach Based on Linear Spectrogram to Measure Optical Delays in Semiconductor Optical Amplifiers

J.-G. Provost[1], A. Martinez[2] and A. Ramdane[2], [1] *Alcatel-Thales III-V Lab, Marcoussis, France and* [2] *CNRS Laboratoire de Photonique et de Nanostructures, Marcoussis, France*

WeP32

Floating-Base InGaP/GaAs Heterojunction Phototransistors with Low Doped Extrinsic Base

M.S. Park, D.S. Kim and J.H. Jang, *Gwangju Institute of Science and Technology, Gwangju, Korea*

WeP33

Optical Control of InP-Based HEMT 60GHz Oscillators with Sub-Harmonic Injection Locking

H. Murata[1], T. Nishi-oka[1], Y. Okamura[1], T. Kosugi[2] and T. Enoki[2], [1] *Osaka University, Osaka, Japan and* [2] *NTT Photonics Laboratories, Atsugi, Japan*

WeP34

Optical Generation of Microwave Carrier with High Spectral Purity Using Integrated Dual Wavelength Semiconductor Laser Diode

C. Sun, J. Huang, B. Xiong and Y. Luo, *Tsinghua University, Beijing, China*

WeP35

Proposal of Multi-Wavelength Integration of Athermal GaAs VCSEL Array with Thermally Actuated Cantilever Structure

N. Nakata, H. Sano, A. Matsutani and F. Koyama, *Tokyo Institute of Technology, Yokohama, Japan*

WeP36

Light Enhancement in a Microdisk of Composition-Tailored InGaAs Quantum Dots-in-a-Well Structure

J.Y. Hsing[1], T.E. Tzeng[1], K.Y. Chuang[1], C.L. Chiu[1], E.Y. Lin[1], T.S. Lay[1], Y.Y. Tsai[2,3], Y.C. Yang[2], K.L. Chen[2,3], K.S. Hsu[2,4], M.C. Wu[3] and M.H. Shih[2,4], [1] *National Sun Yat-Sen University, Kaohsiung, Taiwan,* [2] *Academia Sinica, Taiwan,* [3] *National Tsing Hua University, Taiwan and* [4] *National Chiao Tung University, Taiwan*

WeP37

Air-Bridge Contact Fabrication for In-Plane Active Photonic Crystal Devices

P. Kaspar, R. Kappeler, P. Friedli and H. Jaeckel, *ETH Zurich, Zurich, Switzerland*

WeP38

InP DHBTs having Simultaneously Deposited Base and Emitter Contacts

D. Cohen Elias, A. Gavrilov, S. Cohen, S. Kraus and D. Ritter, *Technion, Israel institute of Technology, Haifa, Israel*

WeP39

Characterization of InAlAs/$In_{0.25}Ga_{0.75}As_{0.72}Sb_{0.28}$/ InGaAs Double Heterojunction Bipolar Transistors

C.-M. Chang[1], S.-H. Chen[1,2], S.-Y. Wang[1] and J.-I. Chyi[1,2], [1] *National Central University, Jhongli, Taiwan and* [2] *Academia Sinica, Taipei, Taiwan*

WeP40

Electron Transport through an Abrupt InP/GaInAs DHBT

D. Ramon, R. Liraz Lidji, D. Cohen Elias, A. Gavrilov, S. Cohen and D. Ritter, *Technion, Haifa, Israel*

WeP41

Analytical Studies on Temperature Dependence of DC Characteristics of InP/GaAsSb Double Heterojunction Bipolar Transistors

H. Wang and Y. Tian, *Nanyang Technological University, Singapore, Singapore*

WeP42

High Linearity 2-Bit Current Steering InP/GaInAs DHBT Digital-to-Analog Converter

S. Kraus[1], I. Kallfass[2], R.E. Makon[2], J. Rosenzweig[2], R. Driad[2], M. Moyal[3] and D. Ritter[1], [1] *Technion - Israel Institute of Technology, Haifa, Israel,* [2] *Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany and* [3] *Intel Haifa Development Center, Haifa, Israel*

WeP43

DC and RF Cryogenic Behaviour of InAs/AlSb HEMTs

G. Moschetti[1], P.-Å. Nilsson[1], L. Desplanque[2], X. Wallart[2], H. Rodilla[3], J. Mateos[3] and J. Grahn[1], [1] *Chalmers University of Technology, Goteborg, Sweden,* [2] *University of Lille, Villeneuve d'Ascq, France and* [3] *Universidad de Salamanca, Salamanca, Spain*

WeP44

An 80 nm $In_{0.7}Ga_{0.3}As$ MHEMT with Flip-Chip Packaging for W-Band Low Noise Applications

C.-T. Wang[1], C.-I. Kuo[1], W.-C. Lim[1], L.-H. Hsu[1], H.-T. Hsu[2], Y. Miyamoto[3], E.Y. Chang[1], S.-P. Tsai[1] and Y.-S. Chiu[1], *[1] National Chiao Tung University, Hsinchu, Taiwan, [2] Yuan Ze University, Chung Li, Taiwan and [3] Tokyo Institute of Technology, Tokyo, Japan*

WeP45

N+-InGaAs/InAlAs Recessed Gates for InAs/AlSb HFET Development

W.-Z. He[1], H.-K. Lin[1], P.-C. Chiu[1], J.-I. Chyi[1], C.-H. Ko[2], T.-M. Kuan[2], M.-K. Hsieh[2], W.-C. Lee[2] and C.H. Wann[2], *[1] National Central University, Chungli, Taiwan and [2] Taiwan Semiconductor Manufacture Company, Hsinchu, Taiwan*

WeP46

Isolated-Gate InAs/AlSb HEMTs: a Monte Carlo Study

H. Rodilla[1], T. Gonzalez[1], M. Malmkvist[2], E. Lefebvre[3], G. Moschetti[4], J. Grahn[4] and J. Mateos[1], *[1] Universidad de Salamanca, Salamanca, Spain, [2] Ericsson AB, Molndal, Sweden, [3] Osram Semiconductor, Regensburg, Germany and [4] Chalmers University of Technology, Göeteborg, Sweden*

WeP47

TCAD Optimization of Field-Plated InAlAs-InGaAs HEMTs

D. Saguatti[1], A. Chini[2], G. Verzellesi[1], M. Mohamad Isa[3], K.W. Ian[3] and M. Missous[3], *[1] University of Modena and Reggio Emilia, Reggio Emilia, Italy, [2] University of Modena and Reggio Emilia, Modena, Italy and [3] The University of Manchester, Manchester, UK*

WeP48

An Optoelectronic Mixer Based on Composite Transparent Gate InAlAs/InGaAs Metamorphic HEMT

C.-K. Lin, C.-W. Lin, Y.-C. Wu and H.-C. Chiu, *Chang Gung University, Taiwan*

WeP49

Plasma-Resonant THz Detection with HEMTs

J. Mateos[1], H. Marinchio[2], C. Palermo[2], L. Varani[2] and T. González[1], *[1] Universidad de Salamanca, Salamanca, Spain and [2] Université Montpellier II, Montpellier, France*

WeP50

Ti- and Pt-Based Schottky Gates for InGaSb p-Channel HFET Development

G.-Y. Liau[1], H.-K. Lin[1], P.-C. Chiu[1], H.-C. Ho[1], J.-I. Chyi[1], C.-H. Ko[2], T.-M. Kuan[2], M.-K. Hsieh[2], W.-C. Lee[2] and C.H. Wann[2], *[1] National Central University, Chungli, Taiwan and [2] Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan*

WeP51

A New Low-Power RTD-Based 4:1 Multiplexer IC using AN InP RTD/HBT MMIC Technology

J. Lee, S. Choi and K. Yang, *Korea Advanced Institute of Science and Technology, Daejeon, Korea*

WeP52

Low Power K-Band Second Harmonic Balanced VCO IC Using InP Based RTDs

Y. Jeong, S. Choi and K. Yang, *Korea Advanced Institute of Science and Technology, Daejeon, Korea*

WeP53

Scalable High-Current Density RTDs with Low Series Resistance

A. Tchegho, B. Muenstermann, C. Gutsche, A. Poloczek, K. Blekker, W. Prost and F.J. Tegude, *University of Duisburg-Essen, Germany*

WeP54

A Traveling Wave Amplifier Based on Composite Right/Left Handed (CRLH) Transmission Lines Periodically Loaded with Resonant Tunneling Diode Pairs

K. Maezawa, K. Kasahara and M. Mori, *University of Toyama, Toyama, Japan*

WeP55

Air-Gap Capacitance-Voltage Analysis of p-InP Surfaces

T. Yoshida[1] and T. Hashizume[2], *[1] Shimane University, Shimane, Japan and [2] Hokkaido University, Sapporo, Japan*

WeP56

THz Generation Based on Gunn Oscillations in GaN Planar Asymmetric Nanodiodes

T. González[1], I. Iñiguez-de-la-Torre[1], D. Pardo[1], A.M. Song[2] and J. Mateos[1], *[1] Universidad de Salamanca, Salamanca, Spain and [2] University of Manchester, Manchester, UK*

Poster Viewing / Meeting Room 62-64, 15:30-18:00 - Wednesday, 2 June 2010

WeP57

InAs/InGaAsP/InP(001) Nanostructures: A Cross-Sectional Scanning Tunneling Microscopy Study

A. Lenz[1], F. Genz[1], H. Eisele[1], L. Ivanova[1], R. Timm[1], D. Franke[2], H. Künzel[2], U.W. Pohl[1] and M. Dähne[1], [1] *Technische Universität Berlin, Berlin, Germany and* [2] *Fraunhofer Institut für Nachrichtentechnik, Berlin, Germany*

WeP58

Room-Temperature Operation Type-II GaSb/GaAs Quantum-Dot Infrared Light-Emitting Diode

C.-C. Tseng[1], S.-Y. Lin[1, 2, 3], W.-H. Lin[1], S.-C. Mai[1], S.-Y. Wu[1], S.-H. Chen[1] and J.-I. Chyi[1, 4], [1] *Academia Sinica, Taipei, Taiwan,* [2] *National Chiao-Tung University, Hsinchu, Taiwan,* [3] *National Taiwan Ocean University, Keelung, Taiwan and* [4] *National Central University, Jhongli, Taiwan*

WeP59

Optical Characterization of InGaAsP/InAlAsP Multiple Quantum Wells Grown by MBE for 1 μm Wavelength Region

T. Yamamoto, M. Kayama and Y. Kawamura, *Osaka Prefecture University, Osaka, Japan*

WeP60

All-Optical Switch Consisting of Multimode Interferometer Combined with Metamaterials: Device Design

T. Amemiya, T. Shindo, D. Takahashi, N. Nishiyama and S. Arai, *Tokyo Institute of Technology, Tokyo, Japan*

Rump Session / Kagawa International Conference Hall, 19:00-20:30 – Wednesday, 2 June 2010

Compound semiconductors for energy harvesting

Organizer: Y. Okada, The University of Tokyo, Japan

Harvesting energies from mother nature is becoming a central issue to reduce fossil fuel consumption and to avoid climate change. Compound semiconductors have a great potential to facilitate energy harvesting and management through their diversity in material functionality. In addition, nanostructures in compound semiconductors are expected to expand their energy conversion capability. In this rump session, successful examples in thin-film and multi-junction solar cells and new concepts employing compound semiconductor nanostructures and their future development are discussed, as well as new energy application including photo-electrolysis of water using GaN material.

Oral Sessions - Thursday, 3 June 2010

Room A
8:45 am - 10:00 am
ThA1: Integrated Light Sources
Presider: S. Matsuo (NTT Photonics Laboratory)

8:45 am - 9:00 am
ThA1-1
Electrical Pumping to III-V Layer from Highly Doped Silicon Micro Wire to Realize Light Emission by Plasma Assisted Bonding Technology
L.-H. Li, R. Takigawa, A. Higo, E. Higurashi, M. Sugiyama and Y. Nakano, *The University of Tokyo, Tokyo, Japan*

9:00 am - 9:15 am
ThA1-2
GaSb Based, 1.55 μm Laser Monolithically Integrated on Silicon Substrates Operating at Room Temperature
L. Cerutti, J.B. Rodriguez and E. Tournié, *University of Montpellier, CNRS, Montpellier, France*

9:15 am - 9:30 am
ThA1-3
Monolithic Integration of a 10 Gb/s Mach-Zehnder Modulator and a Widely Tunable Laser based on a 2-Ring Loop-Filter
T. Okamoto, K. Mizutani, K. Tsuruoka, S. Sudo, M. Sato, K. Kudo, T. Kato and K. Sato, *NEC Corporation, Shiga, Japan*

9:30 am - 9:45 am
ThA1-4
Fast Wavelength Switching in Interleaved Rear Reflector Laser
J.P. Engelstaedter, B. Roycroft, F.H. Peters and B. Corbett, *University College Cork, Cork, Ireland*

9:45 am - 10:00 am
ThA1-5
Wavelength Trimming of MEMS VCSELs for Post-Process Wavelength Allocation
H. Sano, N. Nakata, A. Matsutani and F. Koyama, *Tokyo Institute of Technology, Yokohama, Japan*

Oral Sessions - Thursday, 3 June 2010

Room A
10:30 am - 12:00 noon
ThA2: Photodetectors
Presider: S.Tsuji (Hitach)

10:30 am - 10:45 am
ThA2-1
Optical Coupling of Planar III-V Pin Photodiodes and SOI Waveguides Using an Integrated BCB Prism
L. Moerl[1], W. Passenberg[1], M. Ferstl[1], D. Schmidt[1], R. Zhang[1], T. Aalto[2], M. Harjanne[2], M. Kapulainen[2] and S. Ylinen[2], *[1] Fraunhofer Institute for Telecommunications Heinrich Hertz Institute, Berlin, Germany and [2] VTT Technical Research Centre of Finland, Espoo, Finland*

10:45 am - 11:00 am
ThA2-2
Lateral Junction Waveguide Type Photodiode for Membrane Photonic Circuits
D. Kondo, T. Okumura, H. Ito, S.H. Lee, T. Amemiya, N. Nishiyama and S. Arai, *Tokyo Institute of Technology, Tokyo, Japan*

11:00 am - 11:15 am
ThA2-3
High Gain InAs Electron-Avalanche Photodiodes for Optical Communication
A.R.J. Marshall, P. Vines, S. Xie, J.P.R. David and C.H. Tan, *The University of Sheffield, Sheffield, UK*

11:15 am - 11:30 am
ThA2-4
25-Gbit/s Receiver Optical Subassembly using Maximized-Induced-Current Photodiode
T. Ohno, K. Yoshino, Y. Muramoto, K. Sano, S. Kodama and N. Shigekawa, *NTT Corporation, Atsugi, Japan*

11:30 am - 11:45 am
ThA2-5
Composite-Field MIC-PDs for Low-Bias-Voltage Operation
T. Yoshimatsu[1], Y. Muramoto[1], S. Kodama[1], T. Furuta[1], N. Shigekawa[1], H. Yokoyama[1] and T. Ishibashi[2], *[1] NTT Corporation, Atsugi, Japan and [2] NTT Electronics Corporation, Atsugi, Japan*

11:45 am - 12:00 noon
ThA2-6
Low Excess Noise APD with Detection Capabilities above 2 Microns
Y.L. Goh, D.S.G. Ong, S. Zhang, J.S. Ng, C.H. Tan and J.P.R. David, *The University of Sheffield, Sheffield, UK*

Room B
10:30 am - 12:00 noon
ThB2: HEMT for MMIC
Presider: K. Shinohara (HRL)

10:30 am - 11:00 am (Invited)
ThB2-1
Metamorphic HEMT Technology for Submillimeter-Wave MMIC Applications
A. Leuther, A. Tessmann, I. Kallfass, H. Massler, R. Loesch, M. Schlechtweg, M. Mikulla and O. Ambacher, *Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg, Germany*

11:00 am - 11:15 am
ThB2-2
Sub-50NM InGaAs/InAlAs/InP HEMT for Sub-Millimeter Wave Power Amplifier Applications
X.B. Mei, V. Radisic, W. Deal, W. Yoshida, J. Lee, L. Dang, P.H. Liu, W. Liu, M. Lange, J. Zhou, J. Uyeda, K. Leong and R. Lai, *Northrop Grumman Corporation, Redondo Beach, USA*

11:15 am - 11:30 am
ThB2-3
Improvement in Noise Figure of Wide-Gate-Head InP-Based HEMTs with Cavity Structure
T. Takahashi, M. Sato, Y. Nakasha, T. Hirose and N. Hara, *Fujitsu Laboratories Limited, Atsugi, Japan*

11:30 am - 11:45 am
ThB2-4
High Reliability Performance of 0.1-μm Pt-Sunken Gate InP HEMT Low-Noise Amplifiers on 100 mm InP Substrates
Y.C. Chou, D.L. Leung, M. Biedenbender, D.C. Eng, D. Buttari, X.B. Mei, C.H. Lin, R.S. Tsai, R. Lai, M.E. Barsky, M. Wojtowicz, A.K. Oki and T.R. Block, *Northrop Grumman Corporation, Redondo Beach, USA*

11:45 am - 12:00 noon
ThB2-5
Aluminum-Free GaInP/GaInAs pHEMTs for Low-Noise Applications with Peak f_T = 256 GHz and Peak f_{MAX} = 360 GHz
A.R. Alt, O. Ostinelli and C.R. Bolognesi, *ETH-Zürich, Zürich, Switzerland*

Oral Sessions - Friday, 4 June 2010

Room A
8:30 am - 10:00 am
FrA1: Integrated Receivers and Related Components
Presider: H. Yasaka (Tohoku University)

8:30 am - 9:00 am (Invited)
FrA1-1
Waveguide-Integrated Components Based 100 Gb/s Photoreceivers: From Direct to Coherent Detection
H.-G. Bach, R. Kunkel, G.G. Mekonnen, R. Zhang and D. Schmidt, *Heinrich-Hertz-Institut, Berlin, Germany*

9:00 am - 9:15 am
FrA1-2
Athermal InP-Based 90°-Hybrid Rx OEICs with pin-PDs >60 GHz for Coherent DP-QPSK Photoreceivers
R. Kunkel[1], H.-G. Bach[1], D. Hoffmann[1], G.G. Mekonnen[1], R. Zhang[1], D. Schmidt[1], M. Schell[1], A. Ortega Moñux[2], R. Halir[2] and I. Molina-Fernadez[2], [1] *Heinrich-Hertz-Institut, Berlin, Germany and* [2] *Universidad de Málaga, Málaga, Spain*

9:15 am - 9:30 am
FrA1-3
Novel *InP*-Based Optical 45º Hybrid for Demodulating 8-Ary *DPSK* Signal
S.-H. Jeong and K. Morito, *Fujitsu Laboratories Limited, Atsugi, Japan*

9:30 am - 9:45 am
FrA1-4
Compact *InP*-Based 90º Hybrid Using a Tapered 2x4 *MMI* and a 2x2 *MMI* Coupler
S.-H. Jeong and K. Morito, *Fujitsu Laboratories Limited, Atsugi, Japan*

9:45 am - 10:00 am
FrA1-5
TM Mode Waveguide Isolator Monolithically Integrated with InP Active Devices
G. Takahashi[1], T. Amemiya[2], K. Takeda[1], T. Tanemura[1], A. Higo[1] and Y. Nakano[1], [1] *The University of Tokyo, Tokyo, Japan and* [2] *Tokyo Institute of Technology, Japan*

Room B
8:30 am - 10:00 am
FrB1: Advanced Heteroepitaxy
Presider: J. Abell (NRL)

8:30 am - 9:00 am (Invited)
FrB1-1
Advances in the Growth of Lattice-Matched III-V Compounds on Si for Optoelectronics
B. Kunert[1], K. Volz[2] and W. Stolz[2], [1] *NAsP III/V GmbH, Germany and* [2] *Philipps-University Marburg, Germany*

9:00 am - 9:15 am
FrB1-2
Growth and Characterization of TlInGaAsN/TlGaAsN Triple Quantum Wells on GaAs Substrates
K.M. Kim, Y. Sakai, D. Krishnamurthy, S. Hasegawa and H. Asahi, *Osaka University, Osaka, Japan*

9:15 am - 9:30 am
FrB1-3
Semi-Insulating Iron-Doped InP Buffer Layers for Al-Free GaInP/GaInAs pHEMTs
O. Ostinelli, A.R. Alt, R. Lövblom and C.R, Bolognesi, *ETH-Zürich, Zürich, Switzerland*

9:30 am - 9:45 am
FrB1-4
High-Electron-Mobility $In_{0.53}Ga_{0.47}As/In_{0.8}Ga_{0.2}As$ Composite-Channel Modulation-Doped Structures Grown by Metal-Organic Vapor-Phase Epitaxy
H. Sugiyama, H. Matsuzaki, H. Yokoyama and T. Enoki, *NTT Corporation, Atsugi, Japan*

9:45 am - 10:00 am
FrB1-5
High Doping Effects on *in-situ* Ohmic Contacts to n-InAs
A. Baraskar[1], V. Jain[1], M.A. Wistey[2], U. Singisetti[1], Y.J. Lee[3], B. Thibeault[1], A. Gossard[1] and M.J.W. Rodwell[1], [1] *Univeristy of California Santa Barbara, Santa Barbara, USA,* [2] *University of Notre Dame, USA and* [3] *Intel Corporation, Santa Clara, USA*

Oral Sessions - Friday, 4 June 2010

Room A
10:30 am -12:00 noon
FrA2: Photonic Crystal Devices
Presider: J. Motohisa (Hokkaido University)

10:30 am - 11:00 am (Invited)
FrA2-1
Quantum and Classical Information Processing with a Single Quantum Dot in Photonic Crystal Cavity
A. Majumdar[1], A. Faraon[1,2], D. Englund[1,3], E. Kim[1], I. Fushman[1,4], H. Kim[5], P. Petroff[5], and J. Vuckovic[1],
[1] *Stanford University, Stanford, USA,* [2] *HP Laboratories, Palo Alto, USA,* [3] *Columbia University, NYC, USA,* [4] *Solar Junction, San Jose, USA and* [5] *University of California, Santa Barbara, Santa Barbara, USA*

11:00 am - 11:15 am
FrA2-2
Hybrid III-V Laser on Silicon Wire
Y. Halioua[1,2], A. Bazin[1], P. Monnier[1], T.J. Karle[1], I. Sagnes[1], G. Roelkens[2], D. Van Thourout[2], F. Raineri[1] and R. Raj[1],
[1] *LPN-CNRS, Marcoussis, France and* [2] *Ghent University, Ghent, Belgium*

11:15 am - 11:30 am
FrA2-3
Efficient Grating Couplers on InP with Suspended Membrane
L. Chen[1], L. Zhang[1], C.R. Doerr[1], N. Dupuis[1], N.G. Weimann[2] and R.F. Kopf[2], [1] *Bell Laboratories, Alcatel-Lucent, Holmdel, USA and* [2] *Bell Laboratories, Alcatel-Lucent, Murray Hill, USA*

11:30 am - 12:00 noon (Invited)
FrA2-4
Single Quantum Dot Laser Using Photonic Crystal Nanocavity
M. Nomura, S. Iwamoto and Y. Arakawa, *The University of Tokyo, Tokyo, Japan*

Room B
10:30 am - 12:00 noon
FrB2: FET for Logic
Presider: H. Fujishiro (Tokyo University of Science)

10:30 am - 11:00 am (Invited)
FrB2-1
High speed III-V devices for low power logic application
M. Radosavljevic, *Intel, USA*

11:00 am - 11:15 am
FrB2-2
Logic Characteristics of 40 nm Thin-Channel InAs HEMTs
T.-W. Kim, D.-H. Kim and J.A. del Alamo, *Massachusetts Institute of Technology, Cambridge, USA*

11:15 am - 11:30 am
FrB2-3
III-V-Semiconductor-on-Insulator MISFETs on Si with Buried SiO_2 and Al_2O_3 Layers by Direct Wafer Bonding
M. Yokoyama[1], T. Yasuda[2], H. Takagi[2], Y. Urabe[2], H. Ishii [2], N. Miyata[2], H. Yamada[3], N. Fukuhara[3], M. Hata[3], M. Sugiyama[1], Y. Nakano[1], M. Takenaka[1] and S. Takagi[1],
[1] *The University of Tokyo, Tokyo, Japan,* [2] *National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan and* [3] *Sumitomo Chemical Company Limited, Tsukuba, Japan*

11:30 am - 11:45 am
FrB2-4
Mobility Enhancement in Indium-Rich N-Channel $In_xGa_{1-x}As$ HEMTs by Application of <110> Uniaxial Strain
L. Xia and J.A. del Alamo, *Massachusetts Institute of Technology, Cambridge, USA*

11:45 am - 12:00 noon
FrB2-5
DC and RF Characteristics of InAs-Channel MOS-MODFETs Using PECVD SiO_2 as Gate Dielectrics
H.-C. Ho[1], T.-W. Fan[1], G.-Y. Liau[1], H.-K. Lin[1], P.-C. Chiu[1], J.-I. Chyi[1], C.-H. Ko[2], T.-M. Kuan[2], M.-K. Hsieh[2], W.-C. Lee[2] and C.H. Wann[2], [1] *National Central University, Taoyuan, Taiwan and* [2] *Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan*