

2012 19th International Workshop on Active-Matrix Flatpanel Displays and Devices

(AM-FPD 2012)

**Kyoto, Japan
4 – 6 July 2012**



**IEEE Catalog Number: CFP1293R-PRT
ISBN: 978-1-4673-0399-6**

CONTENTS

Wednesday, July 4

Opening Session (11 : 10 ~ 11 : 25)

Chairperson : Y. Uraoka, *NAIST, Japan*

Welcome Address

H. Hamada, *Panasonic, Japan*

Award Presentation

Session 1 : Keynote Address (11 : 25 ~ 12 : 25)

Chairpersons : M. Furuta, *Kochi Univ. of Technol., Japan*
A. Masuda, *AIST, Japan*

11:25 (1-1)	Current Status and Future Challenge of Oxide Semiconductors (Invited) H. Hosono, <i>Tokyo Inst. of Technol., Japan</i>	1
11:55 (1-2)	Prospects of Thin Film Solar Cells: Towards Competitive Efficiencies (Invited) H. -W. Schock, <i>Helmholtz-Zentrum Berlin, Germany</i>	5

— Lunch —

Session 2 : Oxide Thin-Film Transistor (13 : 45 ~ 15 : 10)

Chairpersons : H. J. Kim, *Yonsei Univ., Korea*
T. Kamiya, *Tokyo Inst. of Technol., Japan*

13:45 (2-1)	Polycrystalline In-Ga-O Semiconductor for High-Performance Thin-Film Transistor (Invited) K. Ebata, S. Tomai, Y. Tsuruma, T. Iitsuka, S. Matsuzaki, K. Yano, <i>Idemitsu Kosan, Japan</i>	9
14:10 (2-2)	Scaling of a-InGaZnO TFTs and Pixel Electrode for AM-LCDs G. Baek ¹ , K. Abe ² , H. Kumomi ² , J. Kanicki ¹ , ¹ <i>Univ. of Michigan, USA</i> , ² <i>Canon, Japan</i>	13
14:30 (2-3)	Oxygen Vacancy Diffusion in Amorphous In-Ga-Zn-Oxide Thin-Film-Transistors with Ti/Cu Source/Drain M. -K. Song ¹ , S. -H. Kuk ¹ , Y. -W. Lee ² , M. -K. Han ¹ , ¹ <i>Seoul Nat'l Univ., Korea</i> , ² <i>Samsung Electronics, Korea</i>	17
14:50 (2-4)	Electronic Structures in Amorphous In-Ga-Zn-O Metal-Oxide-Semiconductor Diodes with Various Gate Insulators A. Hino ¹ , S. Morita ¹ , S. Yasuno ² , T. Kishi ¹ , K. Hayashi ¹ , T. Kugimiya ¹ , ¹ <i>Kobe Steel, Japan</i> , ² <i>Kobelco Res. Inst., Japan</i>	21

— Coffee Break —

Session 3 : Novel Fabrication Processing for Thin-Film Materials (15 : 25 ~ 16 : 50)

Chairpersons : H. Okuzaki, *Univ. of Yamanashi, Japan*
S. Kuroki, *Hiroshima Univ., Japan*

15:25 (3-1)	Polymer Electronic Materials for Sustainable Energies (Invited) S. Nejadi, Z. Carter, R. K. Bose, K. K. S. Lau, <i>Drexel Univ., USA</i>	25
15:50 (3-2)	Fabrication of Zinc Oxide Nano-Patterns by Quick Gel-Nanoimprint Process toward Optical Switching Devices S. Araki ¹ , M. Zhang ¹ , T. Doe ¹ , L. Lu ¹ , M. Horita ^{1,2} , T. Nishida ^{1,2} , Y. Ishikawa ^{1,2} , Y. Uraoka ^{1,2} , ¹ <i>Nara Inst. of Sci. and Technol. (NAIST), Japan</i> , ² <i>Core Res. for Evolutional Sci. and Technol. (CREST), Japan</i>	29
16:10 (3-3)	Pulsed Green Laser Beam a-Si Crystallization and Long Line Beam Generation for LCD and OLED TFT Panels Manufacturing B. Burghardt ¹ , J. Richter ¹ , J. K. Park ² , H. -J. Kahlert ¹ , ¹ <i>INNOVAVENT, Germany</i> , ² <i>EO Technics, Korea</i>	33

16:30 (3-4)	Preparation and Characterization of ITO, NPB and Alq ₃ Thin Films on Transparent Clay Substrate for Flexible OLED Applications S. Venkatachalam, H. Hayashi, T. Ebina, T. Nakamura, H. Nanjo, <i>Advanced Industrial Sci. and Technol. (AIST), Japan</i>	37
-------------	--	----

Late News (16 : 55 ~ 17 : 25)

Chairpersons : N. Fruehauf, *Univ. of Stuttgart, Germany*
S. Kuroki, *Hiroshima Univ., Japan*

16:55 (L-1)	Light Irradiation History Sensor Using Amorphous In-Ga-Zn-O Thin-Film Transistor Fabricated by High Oxygen Partial Pressure Sputtering T. Hasegawa ¹ , M. Kimura ¹ , K. Ide ² , K. Nomura ² , T. Kamiya ² , H. Hosono ² , ¹ <i>Ryukoku Univ., Japan</i> , ² <i>Tokyo Inst. of Technol., Japan</i>	41
-------------	--	----

17:10 (L-2)	Influence of Oxide Semiconductor Thickness on TFT Characteristics M. Nakata, H. Tsuji, H. Sato, Y. Nakajima, Y. Fujisaki, T. Takei, T. Yamamoto, H. Fujikake, <i>NHK Sci. & Technol. Res. Labs., Japan</i>	43
-------------	---	----

Author Interviews (17 : 30 ~ 18 : 00)

Banquet (18 : 10 ~ 20 : 10)

Thursday, July 5

Symposium 1

Current Status and Future Prospects of Novel Transparent Conductive Films (9 : 00 ~ 10 : 30)

Chairpersons :	T. Someya, <i>The Univ. of Tokyo, Japan</i> T. Sadoh, <i>Kyushu Univ., Japan</i>	
9:00 (S1-1)	Trend of Transparent Conductive Oxides for Solar Cells (Invited) T. Koida, H. Sai, H. Shibata, M. Kondo, <i>Advanced Industrial Sci. and Technol. (AIST), Japan</i>	45
9:30 (S1-2)	Solution Processed Graphene Transparent Conductive Film (Invited) K. Ueno, <i>Saitama Univ., Japan</i>	49
10:00 (S1-3)	Hierarchical Structure of PEDOT/PSS and Applications to Transparent Electrodes (Invited) H. Okuzaki, <i>Univ. of Yamanashi, Japan</i>	53

— Coffee Break —

Symposium 2

Reliability of Si, Oxide, and Organic TFTs (10 : 45 ~ 12 : 15)

Chairpersons :	T. Mohmmmed-Brahim, <i>Univ. of Rennes 1, France</i> M. Kimura, <i>Ryukoku Univ., Japan</i>	
10:45 (S2-1)	A Comparison of Processes and Challenges between Organic, a-Si:H, and Oxide TFTs for Active Matrix Backplanes on Plastic (Invited) A. de la F. Vornbrock ¹ , M. Almanza-Workman ² , F. Dickin ³ , R. E. Elder ¹ , R. A. Garcia ² , E. Holland ¹ , W. Jackson ¹ , M. Jam ¹ , A. Jeans ¹ , H. -J. Kim ² , H. Luo ¹ , O. Kwon ² , J. Maltabes ¹ , P. Mei ¹ , C. Perlov ¹ , J. C. Rudin ³ , M. Smith ¹ , S. Trovinger ¹ , L. Zhao ¹ , C. P. Taussing ¹ , ¹ Hewlett Packard Labs., USA, ² Pricot, USA, ³ Hewlett Packard Labs., UK	57
11:15 (S2-2)	Electrical Stability of a-InGaZnO and a-Si:H Thin Film Transistors (Invited) J. Kanicki, <i>Univ. of Michigan, USA</i>	N/A
11:45 (S2-3)	Materials Development for Flexible Displays (Invited) Y. Xia, P. Tan, W. Zhao, H. Yan, D. Boudinet, Z. Chen, Y. Zheng, H. Usta, M. Chen, J. Fang, S.W. Huang, C. C. Hsiao, A. Facchetti, <i>Polyera, USA</i>	63

— Lunch —

Symposium 3

Recent Progress in Thin-Film Photovoltaics (13 : 35 ~ 14 : 35)

Chairpersons :	H. Fujiwara, <i>Gifu Univ., Japan</i> T. Toyama, <i>Osaka Univ., Japan</i>	
13:35 (S3-1)	High Efficiency Amorphous and Nanocrystalline Silicon Thin Film Solar Cells on Flexible Substrates (Invited) B. Yan, G. Yue, J. Yang, S. Guha, <i>United Solar Ovonic, USA</i>	67
14:05 (S3-2)	Recent Progress in Organic Thin-Film Solar Cells (Invited) M. Hiramoto, <i>Inst. for Molecular Sci., Japan</i>	71

— Coffee Break —

Author Interviews (14 : 40 ~ 15 : 10)

Poster Session (14 : 40 ~ 17 : 00)

Chairpersons : M. Furuta, *Kochi Univ. of Technol., Japan*
A. Heya, *Univ. of Hyogo, Japan*
S. Horita, *JAIST, Japan*
Y. Ishikawa, *NAIST, Japan*
H. Okada, *Univ. of Toyama, Japan*
T. Toyama, *Osaka Univ., Japan*

FPDp

(P-1)	Blue-Phase Liquid Crystal Display with Contrast Ratio over 1000:1 M. Kobayashi ¹ , Y. Niikura ¹ , A. Yamashita ¹ , Y. Oe ¹ , M. Ikenaga ¹ , T. Yamamoto ¹ , M. Kato ¹ , M. Nakano ¹ , D. Kubota ¹ , T. Nagi ¹ , H. Shishido ¹ , T. Ishitani ¹ , Y. Hirakata ¹ , J. Koyama ¹ , S. Yamazaki ¹ , D. Kurosaki ² , T. Akahane ³ , ¹ <i>Semicond. Energy Lab., Japan</i> , ² <i>Advanced Film Device, Japan</i> , ³ <i>Nagaoka Univ. of Technol., Japan</i>	75
(P-2)	13.5-Inch Quarter High Definition White Tandem OLED Display Using Crystalline In-Ga-Zn- Oxide Technology S. Kawashima ¹ , K. Toyotaka ¹ , H. Shishido ¹ , H. Miyake ¹ , H. Kimura ¹ , S. Sanefuji ¹ , J. Koyama ¹ , S. Yamazaki ¹ , Y. Shima ² , M. Katayama ² , ¹ <i>Semicond. Energy Lab., Japan</i> , ² <i>Advanced Film Device, Japan</i>	79
(P-3)	Effect of the Aluminum Source on the Microstructure and Luminescent Properties of Y ₃ Al ₅ O ₁₂ :Ce Powder via Microwave Assisted Sintering Method R.-Y. Yang ¹ , K.-H. Chen ² , C. -T. Pan ² , ¹ <i>Nat'l Pingtung Univ. of Sci. and Technol., Taiwan</i> , ² <i>Nat'l Sun Yat-Sen Univ., Taiwan</i>	83
(P-4)	Crystal Structure and Luminescent Properties of K ₂ SrPO ₄ :Tb ³⁺ :Ce ³⁺ Phosphors Prepared by Using Microwave Assisted Sintering Y. -M. Peng ¹ , Y. -K. Su ^{1,2} , R. -Y. Yang ³ , ¹ <i>Nat'l Cheng Kung Univ., Taiwan</i> , ² <i>Kun-Shan Univ., Taiwan</i> , ³ <i>Nat'l Pingtung Univ. of Sci. and Technol., Taiwan</i>	87
(P-5)	Characteristics of ZnO/Al/ZnO Multilayers on Glass with Different ZnO Film Thicknesses Prepared by Cathodic Vacuum Arc Deposition C. -W. Huang ¹ , C. -T. Pan ¹ , R. -Y. Yang ² , ¹ <i>Nat'l Sun Yat-Sen Univ., Taiwan</i> , ² <i>Nat'l Pingtung Univ. of Sci. and Technol., Taiwan</i>	91
(P-6)	Surface Modification of ITO Anode by Supercritical CO ₂ /H ₂ O ₂ Treatment for Organic Light-Emitting Diodes W. C. Tien ¹ , A. K. Chu ¹ , J. A. Lu ¹ , M. Y. Chang ¹ , W. J. Zheng ¹ , M. J. Chuang ² , C. M. Chao ¹ , W. Y. Huang ¹ , ¹ <i>Nat'l Sun Yat-Sen Univ., Taiwan</i> , ² <i>Chienkuo Technol. Univ., Taiwan</i>	95
(P-L1)	A Temperature-Independent Multi-Walled Carbon-Nanotube Sheet Electrode for Transparent Touch Screen D. Jung ¹ , S. -K. Lee ² , K. H. Lee ¹ , D. Burk ¹ , L. J. Overzet ¹ , S. -Y. Choi ² , G. S. Lee ¹ , ¹ <i>Univ. of Texas at Dallas, USA</i> , ² <i>Kyungpook Nat'l Univ., Korea</i>	99
(P-L2)	Highly Conductive Transparent Multi-Walled Carbon Nanotube Films for Touch Screen D. Jung ¹ , S. -K. Lee ² , K. H. Lee ¹ , D. Burk ¹ , L. J. Overzet ¹ , S. -Y. Choi ² , G. S. Lee ¹ , ¹ <i>Univ. of Texas at Dallas, USA</i> , ² <i>Kyungpook Nat'l Univ., Korea</i>	101

TFTp

(P-7)	Improvement of the Field Effect Mobility of a-Si:H TFTs Using the Method of Phosphorus Doping in Active Layer S. -K. Lee, W. -H. Son, Y. -S. Moon, S. -Y. Choi, <i>Kyungpook Nat'l Univ., Korea</i>	103
(P-8)	As-Deposited Crystallized Silicon TFTs for Active Display Addressing H. Dong, E. Jacques, K. Kandoussi, C. Simon, N. Coulon, T. Mohammed-Brahim, <i>Univ. of Rennes I, France</i>	107

(P-9)	Crystallization to Polycrystalline Silicon Films by Underwater Laser Annealing and Its Application to Thin Film Transistors E. Machida ¹ , M. Horita ^{1,2} , Y. Ishikawa ^{1,2} , Y. Uraoka ^{1,2} , H. Ikenoue ² , ¹ <i>Nara Inst. of Sci. and Technol. (NAIST), Japan</i> , ² <i>Core Res. for Evolutional Sci. and Technol. (CREST), Japan</i> , ³ <i>Kyushu Univ., Japan</i>	111
(P-10)	The Uniform Crystallization Process towards the Bottom-Gated LTPS TFT Back-Plane Technology for Large-Sized AM-OLED Displays by CW Green Laser Annealing Y. Sugawara, T. Oda, T. Saitoh, K. Komori, <i>Panasonic, Japan</i>	115
(P-11)	Influence of Overlap Scanning on TFT Properties with Continuous Wave Green Laser Annealing Crystallization T. Oda, Y. Sugawara, T. Saitoh, K. Komori, <i>Panasonic, Japan</i>	119
(P-12)	Impact of Hydrogenation Process on Performance of Self-Aligned Metal Double-Gate LT Poly-Si TFTs Y. Shika ¹ , T. Bessho ² , Y. Okabe ¹ , H. Ogata ¹ , S. Kamo ¹ , K. Kitahara ² , A. Hara ¹ , ¹ <i>Tohoku Gakuin Univ., Japan</i> , ² <i>Shimane Univ., Japan</i>	123
(P-13)	Lateral Large-Grained Low-Temperature Polycrystalline Silicon-Germanium Thin-Film Transistors on Glass Substrates Y. Okabe ¹ , J. Suzuki ² , K. Kitahara ² , A. Hara ¹ , ¹ <i>Tohoku Gakuin Univ., Japan</i> , ² <i>Shimane Univ., Japan</i>	127
(P-14)	Characteristic Analysis of p-i-n Thin-Film Phototransistor Using Device Simulation M. Kimura, Y. Miura, <i>Ryukoku Univ., Japan</i>	131
(P-15)	Excimer Laser Annealed Low Temperature Solution-Processed Oxide Thin Film Transistors J. -S. Lee ¹ , S. -M. Song ¹ , S. -H. Cho ¹ , M. -K. Song ¹ , Y. -H. Kim ² , J. -Y. Kwon ² , M. -K. Han ¹ , ¹ <i>Seoul Nat'l Univ., Korea</i> , ² <i>Korea Electronics Technol. Inst., Korea</i> , ³ <i>Yonsei Univ., Korea</i>	135
(P-16)	Depth Profiling Study on Amorphous InGaZnO ₄ Thin-Film Transistors by X-ray Photoelectron Spectroscopy S. Iwamatsu ¹ , K. Takechi ² , T. Yahagi ¹ , Y. Watanabe ¹ , H. Tanabe ² , S. Kobayashi ¹ , ¹ <i>Yamagata Res. Inst. of Technol., Japan</i> , ² <i>NLT Technologies, Japan</i>	139
(P-17)	Optical Properties and Evaluation of Localized Level in Gap of In-Ga-Zn-O Thin Film N. Ishihara, M. Tsubuku, Y. Nonaka, R. Watanabe, K. Inoue, H. Shishido, K. Kato, S. Yamazaki, <i>Semicond. Energy Lab., Japan</i>	143
(P-18)	Physical Properties of Amorphous In-Ga-Zn-O Films Deposited under Various Sputtering Pressure S. Yasuno ^{1,2} , T. Kita ² , S. Morita ³ , A. Hino ³ , K. Hayashi ³ , T. Kugimiya ³ , ¹ <i>Kobelco Res. Inst., Japan</i> , ² <i>Kobe Univ., Japan</i> , ³ <i>Kobe Steel, Japan</i>	147
(P-19)	The Hysteresis and Off-Current of Amorphous Indium-Gallium-Zinc Oxide Thin Film Transistors with Various Active Layer Thicknesses under the Light Illumination S. -Y. Lee, S. -H. Kuk, M. -K. Song, M. -K. Han, <i>Seoul Nat'l Univ., Korea</i>	151
(P-20)	Composition Ratio in In-Ga-Zn-Oxide FET and Photo Irradiation Stability M. Hayakawa, K. Inoue, M. Tsubuku, M. Ohta, K. Akimoto, M. Takahashi, T. Honda, K. Kato, S. Yamazaki, <i>Semicond. Energy Lab., Japan</i>	155
(P-21)	Influence of Active Layer Thickness on Performance and Reliability of InSnZnO Thin-Film Transistors D. Wang ¹ , C. Li ¹ , M. Furuta ¹ , S. Tomai ² , M. Sunagawa ² , M. Nishimura ² , E. Kawashima ² , M. Kasami ² , K. Yano ² , ¹ <i>Kochi Univ. of Technol., Japan</i> , ² <i>Idemitsu Kosan, Japan</i>	159
(P-22)	Highly Reliable a-IGZO TFTs with SiN _x Gate Insulator Deposited by SiF ₄ /N ₂ H. Yamazaki ¹ , M. Fujii ¹ , Y. Ueoka ¹ , Y. Ishikawa ¹ , M. Fujiwara ² , E. Takahashi ² , Y. Uraoka ¹ , ¹ <i>Nara Inst. of Sci. and Technol. (NAIST), Japan</i> , ² <i>Nissin Electric, Japan</i>	163
(P-23)	The Effects of Passivation Layer on the Electrical Stability of Flexible In-Ga-Zn-O Thin Film Transistors on Plastic Substrate S. -H. Kuk ¹ , M. -K. Song ¹ , S. Kwon ² , S. C. Youn ² , W. S. Park ² , S. -Y. Yoon ² , M. -K. Han ¹ , ¹ <i>Seoul Nat'l Univ., Korea</i> , ² <i>LG Display, Korea</i>	167

(P-24)	Theoretical Examination on a Significantly Low Off-State Current of a Transistor Using Crystalline In-Ga-Zn-Oxide M. Murakami, K. Kato, K. Inada, T. Matsuzaki, Y. Takahashi, S. Yamazaki, <i>Semicond. Energy Lab., Japan</i>	171
(P-25)	Al-Doped ZnO Thin-Film Transistors on Flexible Plastic Substrate W. Wang, D. Han, J. Cai, Y. Geng, L. Wang, Y. Ren, H. Deng, Y. Wang, S. Zhang, <i>Peking Univ., China</i>	175
(P-26)	Effects of Gate Insulator on Thin Film Transistor with ZnO Channel Layer Deposited by Plasma Assisted Atomic Layer Deposition Y. Kawamura ¹ , M. Horita ² , Y. Ishikawa ² , Y. Uraoka ² , ¹ <i>Nara Inst. of Sci. and Technol. (NAIST),apan</i> , ² <i>Core Res. for Evolutional Sci. and Technol. (CREST), Japan</i>	179
(P-27)	Room-Temperature Deposition of InOx Films for Transparent Electronics by Long-Throw Magnetron Sputtering M. -J. Chuang ¹ , W. -C. Tien ² , S. -Y. Huang ² , A. -K. Chu ² , ¹ <i>Chienkuo Technol. Univ., Taiwan</i> , ² <i>Nat'l Sun Yat-Sen Univ., Taiwan</i>	183
(P-28)	Improved Performance of Top Contact Organic Thin Film Transistors with Bilayer WO ₃ /Au Electrodes M. W. Alam, Z. Wang, S. Naka, H. Okada, <i>Univ. of Toyama, Japan</i>	187
(P-29)	Fabrication and Characterization of Thin-Film Transistor Using Dielectrophoretic Assembly of Single-Walled Carbon Nanotube T. Toda, T. Kawaharamura, H. Furusawa, M. Furuta, <i>Kochi Univ. of Technol., Japan</i>	191
(P-30)	Organic Field-Effect Transistors Based on 3,7-bis [5-(4- <i>n</i> -Hexylphenyl)-2-Thienyl] Dibenzothiophene Oligomer Z. Duan ^{1,2} , Y. Yanagi ¹ , H. Ohuchi ¹ , Y. Takayanagi ¹ , G. Zhao ² , Y. Nishioka ¹ , ¹ <i>Nihon Univ., Japan</i> , ² <i>Xi'an Univ. of Technol., China</i>	195
(P-31)	Performance Improvement of Pentacene-Based Organic Thin-Film Transistor with the Planar Bottom-Contact Structure and the Bi-Layer Gate Dielectric C. -L. Fan, Y. -Z. Lin, C. -H. Huang, <i>Nat'l Taiwan Univ. of Sci. and Technol., Taiwan</i>	199
(P-32)	OTFT with PNDT3BT-20 Dispersed Solution by Drop Casting Method M. Trifunovic ¹ , T. Yokota ² , Y. Kato ² , T. Tokuhara ² , I. Hirata ² , I. Osaka ³ , K. Takimiya ³ , T. Sekitani ² , T. Someya ² , R. Ishihara ¹ , ¹ <i>Delft Univ. of Technol., The Netherlands</i> , ² <i>The Univ. of Tokyo, Japan</i> , ³ <i>Hiroshima Univ., Japan</i>	203
(P-L3)	Dependence of Transfer Characteristic of Amorphous Oxide Semiconductor Thin-Film Transistors on the Channel Thickness Evaluated by Device Simulation T. Matsuda ¹ , M. Kimura ¹ , D. Wang ² , C. Li ² , M. Furuta ² , ¹ <i>Ryukoku Univ., Japan</i> , ² <i>Kochi Univ. of Technol., Japan</i>	207
(P-L4)	Compact Decoder-Type Gate Driver Circuits with a-Si TFTs for Active Matrix Displays H. -W. Kim, G. -T. Park, J. -S. Kim, B. -D. Choi, <i>Hanyang Univ., Korea</i>	209
(P-L5)	Magnetic-Field Line Sensor Using Poly-Si Micro Hall Devices T. Segawa, Y. Yamaguchi, D. Tadokoro, H. Hashimoto, M. Kimura, <i>Ryukoku Univ., Japan</i>	211
(P-L6)	Low Energy-Cost TFT Technologies Using Ultra-Thin Flexible Glass Substrate N. Yamauchi ¹ , T. Itoh ² , T. Noguchi ³ , ¹ <i>Waseda Univ., Japan</i> , ² <i>Corning Holding Japan G.K., Japan</i> , ³ <i>Univ. of the Ryukyus, Japan</i>	213

TFMDp

(P-33)	Crystallization of Amorphous Silicon Films by High-Frequency Tapping of Molten Silicon Using Piezo Actuator M. Akazawa, Y. Zhou, K. Sakaike, S. Hayashi, H. Hanafusa, S. Higashi, <i>Hiroshima Univ., Japan</i>	215
(P-34)	Control of Crystal Growth Orientation by Micro- Thermal-Plasma-Jet Induced Melting and Solidification of Silicon Films on Porous Silicon Underlayer S. Hayashi, R. Matsubara, Y. Fujita, M. Ikeda, K. Sakaike, S. Higashi, <i>Hiroshima Univ., Japan</i>	219

(P-35)	Crystallization Mechanism of a-Si and a-Ge by Soft X-Ray Irradiation S. Kino ¹ , A. Heya ¹ , Y. Nonomura ¹ , N. Matsuo ¹ , K. Kanda ¹ , S. Miyamoto ¹ , S. Amano ¹ , T. Mochizuki ¹ , K. Toko ² , T. Sadoh ² , M. Miyao ² , ¹ Univ. of Hyogo, Japan, ² Kyusyu Univ., Japan	223
(P-36)	Cu Nanoparticle Induced Crystallization of Amorphous Ge Film Using Ferritin M. Uenuma, B. Zheng, K. Bundo, M. Horita, Y. Ishikawa, I. Yamashita, Y. Uraoka, Nara Inst. of Sci. and Technol. (NAIST), Japan	227
(P-37)	(111)-Oriented Large-Grain Ge on Insulator by Gold-Induced Crystallization Combined with Interfacial Layer Insertion J. -H Park ^{1,2} , T. Suzuki ¹ , M. Kurosawa ¹ , M. Miyao ¹ , T. Sadoh ¹ , ¹ Kyushu Univ., Japan, ² JSPS Res. Fellow, Japan	231
(P-38)	Formation of Nanostructured Germanium-on-Insulator for Integration of Multi-Functional Materials on a Panel M. Anisuzzaman ¹ , S. Muta ¹ , A. M. Hashim ² , M. Miyao ¹ , T. Sadoh ¹ , ¹ Kyushu Univ., Japan, ² Univ. of Technol. Malaysia, Malaysia	235
(P-39)	ZnO Thin Film Stoichiometry Influenced by Working Gas during Radio Frequency Magnetron Sputtering C. Li, D. Wang, Z. Li, T. Kawaharamura, M. Furuta, Kochi Univ. of Technol., Japan	239
(P-40)	Structural and Electrical Properties of Al ₂ O ₃ Film Grown by Mist Chemical Vapour Deposition T. Kawaharamura, D. Wang, T. Toda, C. Li, M. Furuta, Kochi Univ. of Technol., Japan	243
(P-41)	Fabrication and Magnetic Transition in Fe-Doped Ni-P Nanoarrays by Using Electroless Plating Deposition W. -J. Chen ² , S. -H. Shen ¹ , W. -L. Liu ¹ , S. -H. Hsieh ¹ , ¹ Nat'l Formosa Univ., Taiwan, ² Nat'l Yunlin Technol., Taiwan	247
(P-L7)	Manufacturing Technology for Lateral Multilayer and Micropillar Porous Silicon Formations Based on Localized Electrical Current Method J. -C. Lin ¹ , M. -K. Hsu ¹ , H. -T. Hou ² , J. -K. Chen ³ , W. -S. Hwang ¹ , ¹ St. John's Univ., Taiwan, ² Tamkang Univ., Taiwan, ³ Chinese Culture Univ., Taiwan	P IC
(P-43)	Minority Carrier Lifetime Measurements by Multiple Wavelength Light Induced Carrier Microwave Absorption Method T. Sameshima, Y. Takiguchi, T. Ngao, M. Hasumi, Tokyo Univ. of Agriculture and Technol., Japan.....	253
(P-44)	Minority Carrier Annihilation Property for Crystalline Silicon Surfaces J. Furukawa, T. Nagao, T. Sameshima, Tokyo Univ. of Agriculture and Technol., Japan	257
(P-45)	RIE Texturing for mc-Si Solar Cell in SF ₆ /O ₂ /Cl ₂ Gas Mixtures K. M. Park ¹ , M. B. Lee ² , S. Y. Choi ¹ , ¹ Kyungpook Nat'l Univ., Korea, ² Daegu Technopark Nano Convergence Practical Application Ctr., Korea	261

Friday, July 6

Special Session : Flat Panel Displays and Devices for Next Generation (9 : 00 ~ 10 : 30)

Chairpersons :	H. Okada, <i>Univ. of Toyama, Japan</i> A. Nathan, <i>Univ. of Cambridge, UK</i>
9:00 (SP-1)	Thin Film Power Harvesting System for Displays (Invited) A. Nathan ¹ , A. Ahnood ¹ , J. Edge ² , ¹ <i>Univ. of Cambridge, UK</i> , ² <i>Univ. College London, UK</i>265
9:25 (SP-2)	Flexible Electrophoretic Displays Driven by Organic Thin-Film Transistors with Solution-Processed Organic Semiconductor and Insulators (Invited) H. Ono, N. Yoneya, Y. Ishii, K. Himori, N. Hirai, H. Abe, A. Yumoto, N. Kobayashi, K. Nomoto, <i>Sony, Japan</i>269
9:50 (SP-3)	13.5-Inch Quarter-HD Flexible AMOLED with Crystalline Oxide FET H. Shinoda ¹ , R. Komatsu ¹ , M. Kataniwa ¹ , T. Aoyama ¹ , K. Hatano ¹ , A. Chida ¹ , S. Kawashima ¹ , Y. Hirakata ¹ , S. Yamazaki ¹ , K. Yamamoto ² , S. Obana ² , ¹ <i>Semicond. Energy Lab., Japan</i> , ² <i>Advanced Film Device, Japan</i>273
10:10 (SP-4)	Current Mirror and Current Feedback Driving of Active Matrix Organic Light Emitting Displays N. Fruehauf, P. Schalberger, M. Herrmann, A. Vielwock, <i>Univ. of Stuttgart, Germany</i>277

— Coffee Break —

Session 4: Novel Technologies for Photovoltaics (10: 45 ~ 12 : 30)

Chairpersons :	B. Yan, <i>United Solar Ovonic, USA</i> Y. Ishikawa, <i>NAIST, Japan</i>
10:45 (4-1)	Photovoltaic Thin-Film Materials Characterized Using Spectroscopic Ellipsometry (Invited) H. Fujiwara, S. Kageyama, T. Yuguchi, Y. Kanie, <i>Gifu Univ., Japan</i>281
11:10 (4-2)	Increase in Minority Carrier Lifetime Measured by Microwave Irradiation Method T. Sameshima, K. Betsuin, T. Nagao, M. Hasumi, <i>Tokyo Univ. of Agriculture and Technol., Japan</i>285
11:30 (4-3)	CIGS Solar Cell on Flexible Stainless Steel Substrate Fabricated by Sputtering Method: Simulation and Experimental Results R. Zhang, D. R. Hollars, J. Kanicki, <i>Univ. of Michigan, USA</i>289
11:50 (4-4)	Fabrication of PTB7:PC71BM Bulk Hetero Junction Polymer Solar Cells by Airbrush Spray-Coating Technique P. Kumar ¹ , P. -K. Shin ² , S. Ochiai ¹ , ¹ <i>Aichi Inst. of Technol., Japan</i> , ² <i>Inha Univ., Korea</i>293
12:10 (4-5)	An Empirical Study on a Variety of Solar Panels in BIPV Power Conversion Applications H. -C. Sung ^{1,2} , S. Cheng ² , C. Y. Huang ¹ , C. -C. Chan ¹ , ¹ <i>Industrial Technol. Res. Inst. (ITRI), Taiwan</i> , ² <i>Nat'l Chiao Tung Univ., Taiwan</i>297

— Lunch —

Session 5: Advanced Technologies for Thin-Film Transistor (13: 40 ~ 14 : 50)

Chairpersons :	A. de la F. Vornbrock, <i>Hewlett Packard Labs., USA</i> T. Takenobu, <i>Waseda Univ., Japan</i>
13:40 (5-1)	Low Temperature Solution Process for Oxide TFT (Invited) W. H. Jeong, D. L. Kim, H. J. Kim, <i>Yonsei Univ., Korea</i>301
14:05 (5-2)	Gate-Tunable Control in Graphene Semiconductive Channel (Invited) K. Tsukagoshi ¹ , H. Miyazaki ¹ , S. -L. Li ¹ , A. Kanda ² , S. Nakaharai ³ , ¹ <i>Nat'l Inst. for Material Sci. (NIMS), Japan</i> , ² <i>Univ. of Tsukuba, Japan</i> , ³ <i>Advanced Industrial Sci. and Technol. (AIST), Japan</i>305

14:30 (5-3)	Reliability of Single-Grain Silicon TFTs Fabricated from Spin-Coated Liquid-Silicon J. Zhang ¹ , R. Ishihara ¹ , H. Takagishi ² , R. Kawajiri ² , T. Shimoda ^{2,3} , C. I. M. Beenakker ¹ , ¹ <i>Delft Univ. of Technol., The Netherlands</i> , ² <i>Japan Sci. and Technol., Japan</i> , ³ <i>Japan Advanced Inst. of Sci. and Technol. (JAIST), Japan</i>	309
-------------	--	-----

— Coffee Break —

Session 6: Silicon Thin-Film Transistor (15: 05 ~ 16 : 30)

Chairpersons : J. Kanicki, *Univ. of Michigan, USA*
T. Noguchi, *Univ. of the Ryukyus, Japan*

15:05 (6-1)	Silicon TFTs and Circuits on Glass and Plastics (Invited) T. Mohammed-Brahim, S. Janfaoui, K. Kandoussi, C. Simon, N. Coulon, <i>Univ. of Rennes 1, France</i>	313
15:30 (6-2)	Double Crystalline Silicon Channel Thin Film Transistor by Continuous-Wave Green Laser for Large-Sized OLED Display H. Hayashi, A. Kanegae, K. Nishida, T. Kawashima, T. Saitoh, K. Komori, <i>Panasonic, Japan</i>	317
15:50 (6-3)	Superior Characteristics and Reliability of Poly-Si TFTs with Vacuum Cavities underneath Poly-Si Gate Edges H. -W. Liu ¹ , S. -M. Chiou ¹ , F. -H. Wang ¹ , T. -K. Kang ² , ¹ <i>Nat'l Chung Hsing Univ., Taiwan</i> , ² <i>Feng-Chia Univ., Taiwan</i>	321
16:10 (6-4)	Effect of Intrinsic Capacitances and Time Necessary for Channel Creation in Silicon-Based Thin-Film Transistors J. W. Jin ¹ , J. -C. Vanel ¹ , D. Daineka ¹ , Y. Bonnassieux ¹ , S. Janfaoui ² , K. Kandoussi ² , N. Coulon ² , T. Mohammed-Brahim ² , ¹ <i>Ecole Polytechnique, France</i> , ² <i>Univ. of Rennes 1, France</i>	325

Closing Remarks (16 : 30 ~ 16 : 35)

Author Interviews (16 : 35 ~ 17 : 05)

This workshop is moderated by:

A. Heya (*Univ. of Hyogo*)
Y. Ishikawa (*NAIST*)
T. Kawaharamura (*Kochi Univ. of Technol.*)
T. Matsuda (*Ryukoku Univ.*)
T. Toyama (*Osaka Univ.*)
N. Watanabe (*Sharp*)