



ADVANCE PROGRAM

AM-FPD 12

THE NINETEENTH INTERNATIONAL WORKSHOP ON
**ACTIVE-MATRIX
FLATPANEL DISPLAYS AND DEVICES**

-TFT TECHNOLOGIES AND FPD MATERIALS-

JULY 4-6, 2012

Ryukoku University Avanti Kyoto Hall
Kyoto, Japan

Sponsorship:

The Japan Society of Applied Physics

Technical Sponsorship:

The Electrochemical Society - Electronics and Photonics Division -
The Electrochemical Society - Japan Section -
IEEE Electron Devices Society

Cosponsorship:

The Institute of Electronics, Information and
Communication Engineers

The Institute of Image Information and Television Engineers

The Institute of Electrical Engineers of Japan

The Chemical Society of Japan

Japanese Liquid Crystal Society

Thin Film Materials & Devices Meeting

AM-FPD '12 Time Table

Wednesday, July 4		Thursday, July 5		Friday, July 6	
Registration	8:30-17:00	8:30-17:00		8:30-14:30	
Tutorial	9:00-11:00	<i>Tutorial in Japanese</i>			
Workshop	11:10-11:25	Opening Session		Special Session : Flat Panel Displays and Devices for Next Generation	
	11:25-12:25	9:00-10:30	Symposium 1: Current Status and Future Prospects of Novel Transparent Conductive Films		9:00-10:30
	12:25-13:45	10:30-10:45	<i>Coffee Break</i>		10:30-10:45
	13:45-15:10	10:45-12:15	Symposium 2: Reliability of Si, Oxide, and Organic TFTs		10:45-12:30
	15:10-15:25	12:15-13:35	<i>Lunch</i>		12:30-13:40
	15:25-16:50	13:35-14:35	Symposium 3: Recent Progress in Thin-Film Photovoltaics		13:40-14:50
16:55-17:40	17:40-18:10	<i>Coffee Break</i>		14:50-15:05	14:50-15:05
Author Interviews	17:40-18:10	14:40-15:10	Session 2 : Oxide Thin-Film Transistor		15:05-16:30
Poster Session		14:40-17:00	Session 3 : Novel Fabrication Processing for Thin-Film Materials		16:30-16:35
Banquet	18:15-20:15	<i>Banquet</i>		Session 4: Novel Technologies for Photovoltaics	
			Session 5: Advanced Technologies for Thin- Film Transistor		16:35-17:05
			Session 6: Silicon Thin-Film Transistor		
			<i>Coffee Break</i>		
			Session 7: Closing Remarks		
			Author Interviews		
			Poster Session: FPDp / TFTp / TFMDp / PVp / LNP		
			Author Interviews		

Workshop : "Ryukoku University Avanti Kyoto Hall" (Avanti, 9th Floor)

Registration : Entrance (Avanti, 9th Floor)

Poster Session : Marriage Grande "Takao" (Avanti, 8th Floor)

Author Interviews : Lobby (Avanti, 9th Floor)(July 4, 6)

Marriage Grande "Takao" (Avanti, 8th Floor) (July 5)

Banquet : Marriage Grande "Takao" (Avanti, 8th Floor)

Tutorial : "Ryukoku University Avanti Kyoto Hall" (Avanti, 9th Floor)

(See Page 25)

GENERAL INFORMATION

The Nineteenth International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD '12) will be held at Ryukoku University Avanti Kyoto Hall, Kyoto, Japan from July 4 (Wednesday) to 6 (Friday), 2012.

This international workshop was established in 1994 to present the latest research and development in AM-LCD technologies and their applications. Recently, the scope has been widened to the other types of flatpanel displays, materials for displays, related physical phenomena and novel electronics systems such as thin-film transistors (TFT), thin-film materials and devices (TFMD), and photovoltaics (PV) technologies.

We hope you will enjoy this exciting workshop.

SITE

Ryukoku University Avanti Kyoto Hall (Avanti 9th Floor)
31 Higashikujyo-nishisannoucho, Minami-ku, Kyoto 601-8003,
Japan (see the map on page 25, 26)

AM-FPD '12 Secretariat Tel: +81-475-23-1150

SYMPOSIUM / SPECIAL SESSION

In addition to the regular sessions, symposia, “*Current Status and Future Prospects of Novel Transparent Conductive Films*”, “*Reliability of Si, Oxide, and Organic TFTs*” and “*Recent Progress in Thin-Film Photovoltaics*” are scheduled. And also, the special session, “*Flat Panel Displays and Devices for Next Generation*” is planned. Invited speakers will talk about the latest topics from the viewpoint of functional materials, device structures, fabrication processes, driving scheme, circuit technologies, etc.

PRESENTATION TIMES FOR SPEAKERS

	Total	Presentation	Discussion
Keynote	30 min.	25 min.	5 min.
Invited	25 min.	20 min.	5 min.
Symposium	30 min.	25 min.	5 min.
Oral	20 min.	15 min.	5 min.
Poster	14:40-17:00, July 5		
Late News	15 min.	12 min.	3 min.

THE PROCEEDINGS OF AM-FPD '12

The Proceedings of AM-FPD '12 will be distributed from July 4 at the Registration Desk.

LANGUAGE

The official language of the workshop is English.

REGISTRATION

The Registration Desk will be open in front of Ryukoku University Avanti Kyoto Hall from Wednesday to Friday.

The registration hours are as follows:

Wednesday, July 4	8:30-17:00
Thursday, July 5	8:30-17:00
Friday, July 6	8:30-14:30

For Advance Registration, access our online registration page (<http://www.amfpd.jp>) and enroll your information and complete payment by June 8(JPT). Registration and other fees should be paid in Japanese yen via bank transfer*¹ or credit cards. VISA, Master Card, AMEX, Diners Club, Nicos and JCB are acceptable. No personal checks are acceptable. After your payment has been confirmed, confirmation will be sent by NTA (Nippon Travel Agency Co., Ltd.) (see page 3) by the end of June.

*¹ Bank transfer for AM-FPD

A/C No.: 3106891 Mizuho Corporate Bank, Ltd. Jugogou Branch
A/C Name: Nippon Travel Agency Co., Ltd.

Registrants living in Japan can make payment via bank transfer or credit cards. Registrants living overseas can make payment by credit cards only.

	Advance Registration By June 6, 2012 (JPT)	On-Site
WORKSHOP*²		
Member* ³	¥43,000	¥48,000
Non-Member	¥45,000	¥50,000
Student* ⁴	¥10,000	¥10,000
TUTORIAL		
Regular	¥5,000	¥5,000
Conference Attendee/ Student	¥3,000	¥3,000

*²The registration fee of workshop includes the Proceedings of AM-FPD '12 (Book, USB Memory) and admission to all sessions. The banquet of AM-FPD '12 will be served without additional charge.

*³The member of the societies which sponsor and support AM-FPD '12 (see the front cover)

*⁴Students are required to show their ID card.

In case of cancellation, a written notification should be sent to NTA by e-mail (am-fpd@nta.co.jp) or by FAX (+81-43-225-2241) to avoid any trouble.

Cancel Charge

From June 1 to 29-----JPY 3,000

After June 30---100% of the registration fee / NO REFUND

The Proceedings of the AM-FPD '12 (Book, USB Memory) will be sent to the attendees who have paid in 100% cancellation charge after the workshop.

BANQUET

The Banquet will be held on July 4, 2012, from 18:15 to 20:15 at Mariage Grande “Takao” on the 8th floor of Avanti.

OFFICIAL TRAVEL AGENT

Nippon Travel Agency Co., Ltd. (NTA) has been appointed as the official travel agent for the workshop and will handle all related travel arrangements, including hotel accommodations. Inquiries and applications concerning arrangements should be addressed to:

Nippon Travel Agency Co., Ltd.(NTA)

Chiba Branch

Chiba Center Square Bldg. 4F, 2-3-16, Chuo, Chuo-ku, Chiba
260-0013, Japan

Fax: +81-43-225-2241 Tel: +81-43-227-2307

E-mail: am-fpd@nta.co.jp

For hotel accommodation, please access our Web site (<http://www.amfpd.jp>) and register on the hotel accommodation page by June 8 (JPT).

There will also be an on-site travel information desk during the workshop period to handle arrangements for transportation and tours.

VISAS

Every foreign visitor entering Japan must have a valid passport. Visitors from countries whose citizens must have visas should apply to a Japanese consular office or diplomatic mission in their own country.

AM-FPD 13

20th Anniversary Workshop

July, 2013

Kyoto, Japan

The AMFPD committees are now planning many events for the 20th anniversary. We are looking forward to seeing you at the 20th anniversary workshop.

JAPANESE JOURNAL OF APPLIED PHYSICS

SPECIAL ISSUE

The authors of the superior papers will be recommended by the committee to submit their papers for publication in the JJAP (Japanese Journal of Applied Physics) special issue of "Active-Matrix Flatpanel Displays and Devices -TFT Technologies and FPD Materials-" (Vol. 52, No. 3, 2013). The manuscript should contain some novel, original and significant parts in addition to your presentation in AM-FPD '12.

Any paper submitted to a special issue should not have text identical to a paper distributed in the associated conference (meeting etc.). The content of the paper must be original with well-developed discussions on the obtained results. The submission must be made through the below online submission no later than July 13, 2012.

Submission & Information:

JJAP Website: <http://jjap.ipap.jp/>

The review schedule is as follows:

- July 13 2012: Submission
- December, 2012: Final decision
- March, 2013: Publication

TUTORIAL IN JAPANESE

These classes are widely aimed at many people from beginners to researchers who hope to review their knowledge. Presentations and documents will be in Japanese.

Documents will be distributed to the attendees who have registered in advance. The attendees who make an entry on-site will be admitted into these classes, but no documents may be distributed to them. These classes are available for an additional fee (see page 2.)

Monday, July 4 (9 : 00 ~ 11 : 00)

Chairperson : M. Furuta, *Kochi Univ. of Technol., Japan*

9:00 (T-1) Thin-Film Transistors and Flatpanel Displays
Mutsumi Kimura, *Ryukoku Univ., Japan*

10:00 (T-2) Materials and Device Technologies for Thin-Film Solar Cells
Toshihiko Toyama, *Osaka Univ., Japan*

AWARD

Papers presented at this workshop will be considered for “AM-FPD Paper Awards” and “AMFPD-ECS Japan Section Young Researcher Award.” These winners will be presented at the award ceremony in AM-FPD '13 workshop.

AM-FPD Paper Awards

“Best Paper Award”, “Poster Award” and “Student Paper Award” will be presented. The winners of them are selected by AMFPD '12 award committee chaired by Professor Yukiharu Uraoka (*NAIST*).

AMFPD-ECS Japan Section Young Researcher Award

ECS Japan Section and AM-FPD Organizing Committee have jointly established “AMFPD-ECS Japan Section Young Researcher Award.” This award will be given to the author under the age of 35 that belongs to the university or the research institute in Japan.

AM-FPD '11 PAPER AWARD

Best Paper Award

Hidehito Kitakado, *Sharp, Japan*

(3-2) Channel Shortening Phenomenon Due to Redox Reaction in a Lateral Direction on In-Ga-Zn-O Thin-Film Transistors

Poster Award

Shin-Ichiro Kuroki, *Tohoku University, Japan*

(P-L3) Crystal Growth of Highly Biaxially-Oriented Poly-Si Thin Films by W-Line Beam Continuous-Wave Laser Lateral Crystallization

Student Paper Award

Jean de Dieu Mugiraneza, *University of the Ryukyus, Japan*

(L-2) Crystallization of Si Thin-Film on Flexible Plastic Substrate by Using Blue Multi- Laser Diode Annealing

ORGANIZING COMMITTEE

Chair: Hiroki Hamada (*Panasonic*)
Vice-Chair: Hiroshi Tsutsu (*Japan Display*)
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Kazunori Komori (*Panasonic*)
Yue Kuo (*Texas A&M Univ.*)
Nobuo Sasaki (*Samsung Mobile Display*)

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Toshiaki Arai (*Sony*)
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Kazushige Takechi (*NLT Technologies*)
Taishi Takenobu (*Waseda Univ.*)
Yasuo Toko (*Stanley Electric*)
Toshihiko Toyama (*Osaka Univ.*)
Noriko Watanabe (*Sharp*)
Man Wong (*Hong Kong Univ. of Sci. and Technol.*)
Hajime Yamaguchi (*Toshiba*)
Yung-Hui Yeh (*ITRI*)
WenChang Yeh (*Shimane Univ.*)

PROGRAM

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, *Tokyo Inst. of Technol., Japan*

11:55 (1-2) Prospects of Thin Film Solar Cells: Towards Competitive Efficiencies (Invited)

H. -W. Schock, *Helmholtz-Zentrum Berlin, Germany*

— 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, *Idemitsu Kosan, Japan*

14:10 (2-2) Scaling of a-InGaZnO TFTs and Pixel Electrode for AM-LCDs

G. Baek¹, K. Abe², H. Kumomi², J. Kanicki¹,
¹*Univ. of Michigan, USA*, ²*Canon, Japan*

14:30 (2-3) Oxygen Vacancy Diffusion in Amorphous In-Ga-Zn-Oxide Thin-Film-Transistors with Ti/Cu Source/Drain

M. -K. Song¹, S. - H. Kuk¹, Y. - W. Lee²,
M. -K. Han¹, ¹*Seoul Nat'l Univ., Korea*,
²*Samsung Electronics, Korea*

- 14:50 (2-4) Electronic Structures in Amorphous In-Ga-Zn-O Metal-Oxide-Semiconductor Diodes with Various Gate Insulators
A. Hino¹, S. Morita¹, S. Yasuno², T. Kishi¹,
K. Hayashi¹, T. Kugimiya¹, ¹*Kobe Steel, Japan*,
²*Kobelco Res. Inst., Japan*

— 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. Nejati, Z. Carter, R. K. Bose, K. K. S. Lau,
Drexel Univ., USA
- 15:50 (3-2) Fabrication of Zinc Oxide Nano-Patterns by Quick Gel-Nanoimprint Process toward Optical Switching Devices
S. Araki¹, M. Zhang¹, T. Doe¹, L. Lu¹, M. Horita^{1,2},
T. Nishida^{1,2}, Y. Ishikawa^{1,2}, Y. Uraoka^{1,2}, ¹*Nara Inst. of Sci. and Technol. (NAIST), Japan*, ²*Core Res. for Evolutional Sci. and Technol. (CREST), Japan*
- 16:10 (3-3) Pulsed Green Laser Beam a-Si Crystallization and Long Line Beam Generation for LCD and OLED TFT Panels Manufacturing
B. Burghardt¹, J. Richter¹, J. K. Park²,
H. -J. Kahlert¹, ¹*INNOVAVENT, Germany*, ²*EO Technics, Korea*
- 16:30 (3-4) Preparation and Characterization of ITO, NPB and Alq₃ Thin Films on Transparent Clay Substrate for Flexible OLED Applications
S. Venkatachalam, H. Hayashi, T. Ebina,
T. Nakamura, H. Nanjo, *Advanced Industrial Sci. and Technol. (AIST), Japan*

Late News (16 : 55 ~ 17 : 40)

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

Author Interviews (17 : 40 ~ 18 : 10)

Banquet (18 : 15 ~ 20 : 15)

Thursday, July 5

Symposium 1: Current Status and Future Prospects of Novel Transparent Conductive Films

(9 : 00 ~ 10 : 30)

Chairpersons : T. Someya, *The Univ. of Tokyo, Japan*
T. Sadoh, *Kyushu Univ., Japan*

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

— Coffee Break —

Symposium 2: Reliability of Si, Oxide, and Organic TFTs

(10 : 45 ~ 12 : 15)

Chairpersons : T. Mohmmmed-Brahim, *Univ. of Rennes 1, France*
M. Kimura, *Ryukoku Univ., Japan*

- 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. Vornbrock¹, M. Almanza-Workman², F. Dickin³, R. E. Elder¹, R. A. Garcia², E. Holland¹, W. Jackson¹, M. Jam¹, A. Jeans¹, H. -J. Kim², H. Luo¹, O. Kwon², J. Maltabes¹, P. Mei¹, C. Perlov¹, J. C. Rudin³, M. Smith¹, S. Trovinger¹, L. Zhao¹, C. P. Taussing¹,
¹Hewlett Packard Labs., USA, ²Pricot, USA, ³Hewlett Packard Labs., UK
- 11:15 (S2-2) Electrical Stability of a-InGaZnO and a-Si:H Thin Film Transistors (Invited)
J. Kanicki, *Univ. of Michigan, USA*

11:45 (S2-3) Materilas 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
Polyera, USA

— Lunch —

Symposium 3: Recent Progress in Thin-Film Photovoltaics

(13 : 35 ~ 14 : 35)

Chairpersons : H. Fujiwara, *Gifu Univ., Japan*
T. Toyama, *Osaka Univ., Japan*

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, *United Solar
Ovonic, USA*

14:05 (S3-2) Recent Progress in Organic Thin-Film Solar
Cells (Invited)
M. Hiramoto, *Inst. for Molecular Sci., Japan*

— 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. Kobayashi¹, Y. Niikura¹, A. Yamashita¹, Y. Oe¹, M. Ikenaga¹, T. Yamamoto¹, M. Kato¹, M. Nakano¹, D. Kubota¹, T. Nagi¹, H. Shishido¹, T. Ishitani¹, Y. Hirakata¹, J. Koyama¹, S. Yamazaki¹, D. Kurosaki², T. Akahane³,
¹*Semicond. Energy Lab., Japan*, ²*Advanced Film Device, Japan*, ³*Nagaoka Univ. of Technol., Japan*
- (P-2) 13.5-Inch Quarter High Definition White Tandem OLED Display Using Crystalline In-Ga-Zn-Oxide Technology
S. Kawashima¹, K. Toyotaka¹, H. Shishido¹, H. Miyake¹, H. Kimura¹, S. Sanefuji¹, J. Koyama¹, S. Yamazaki¹, Y. Shima², M. Katayama²,
¹*Semicond. Energy Lab., Japan*, ²*Advanced Film Device, Japan*
- (P-3) Effect of the Aluminum Source on the Microstructure and Luminescent Properties of Y₃Al₅O₁₂:Ce Powder via Microwave Assisted Sintering Method
R.-Y. Yang¹, K.-H. Chen², C. -T. Pan², ¹*Nat'l Pingtung Univ. of Sci. and Technol., Taiwan*,
²*Nat'l Sun Yat-Sen Univ., Taiwan*
- (P-4) Crystal Structure and Luminescent Properties of K₂SrPO₄:Tb³⁺:Ce³⁺ Phosphors Prepared by Using Microwave Assisted Sintering
Y. -M. Peng¹, Y. -K. Su^{1,2}, R. -Y. Yang³, ¹*Nat'l Cheng Kung Univ., Taiwan*, ²*Kun-Shan Univ., Taiwan*, ³*Nat'l Pingtung Univ. of Sci. and Technol., Taiwan*

(P-5) Characteristics of ZnO/Al/ZnO Multilayers on Glass with Different ZnO Film Thicknesses Prepared by Cathodic Vacuum Arc Deposition
C. -W. Huang¹, C. -T. Pan¹, R. -Y. Yang², ¹Nat'l Sun Yat-Sen Univ., Taiwan, ²Nat'l Pingtung Univ. of Sci. and Technol., Taiwan

(P-6) Surface Modification of ITO Anode by Supercritical CO₂/H₂O₂ Treatment for Organic Light-Emitting Diodes
W. C. Tien¹, A. K. Chu¹, J. A. Lu¹, M. Y. Chang¹, W. J. Zheng¹, M. J. Chuang², C. M. Chao¹, W. Y. Huang¹, ¹Nat'l Sun Yat-Sen Univ., Taiwan, ²Chienkuo Technol. Univ., Taiwan

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, Kyungpook Nat'l Univ., Korea

(P-8) As-Deposited Crystallized Silicon TFTs for Active Display Addressing
H. Dong, E. Jacques, K. Kandoussi, C. Simon, N. Coulon, T. Mohammed-Brahim, Univ. of Rennes 1, France

(P-9) Crystallization to Polycrystalline Silicon Films by Underwater Laser Annealing and Its Application to Thin Film Transistors
E. Machida¹, M. Horita^{1,2}, Y. Ishikawa^{1,2}, Y. Uraoka^{1,2}, H. Ikenoue², ¹Nara Inst. of Sci. and Technol. (NAIST), Japan, ²Core Res. for Evolutional Sci. and Technol. (CREST), Japan, ³Kyushu Univ., Japan

(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, Panasonic, Japan

- (P-11) Influence of Overlap Scanning on TFT Properties with Continuous Wave Green Laser Annealing Crystallization
T. Oda, Y. Sugawara, T. Saitoh, K. Komori, *Panasonic, Japan*
- (P-12) Impact of Hydrogenation Process on Performance of Self-Aligned Metal Double-Gate LT Poly-Si TFTs
Y. Shika¹, T. Bessho², Y. Okabe¹, H. Ogata¹, S. Kamo¹, K. Kitahara², A. Hara¹, ¹*Tohoku Gakuin Univ., Japan*, ²*Shimane Univ., Japan*
- (P-13) Lateral Large-Grained Low-Temperature Polycrystalline Silicon-Germanium Thin-Film Transistors on Glass Substrates
Y. Okabe¹, J. Suzuki², K. Kitahara², A. Hara¹, ¹*Tohoku Gakuin Univ., Japan*, ²*Shimane Univ., Japan*
- (P-14) Characteristic Analysis of p-i-n Thin-Film Phototransistor Using Device Simulation
M. Kimura, Y. Miura, *Ryukoku Univ., Japan*
- (P-15) Excimer Laser Annealed Low Temperature Solution-Processed Oxide Thin Film Transistors
J. -S. Lee¹, S. -M. Song¹, S. -H. Cho¹, M. -K. Song¹, Y. -H. Kim², J. -Y. Kwon², M. -K. Han¹, ¹*Seoul Nat'l Univ., Korea*, ²*Korea Electronics Technol. Inst., Korea*, ³*Yonsei Univ., Korea*
- (P-16) Depth Profiling Study on Amorphous InGaZnO₄ Thin-Film Transistors by X-ray Photoelectron Spectroscopy
S. Iwamatsu¹, K. Takechi², T. Yahagi¹, Y. Watanabe¹, H. Tanabe², S. Kobayashi¹, ¹*Yamagata Res. Inst. of Technol., Japan*, ²*NLT Technologies, Japan*
- (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, *Semicond. Energy Lab., Japan*

- (P-18) Physical Properties of Amorphous In-Ga-Zn-O Films Deposited under Various Sputtering Pressure
S. Yasuno^{1,2}, T. Kita², S. Morita³, A. Hino³, K. Hayashi³, T. Kugimiya³, ¹*Kobelco Res. Inst., Japan*, ²*Kobe Univ., Japan*, ³*Kobe Steel, Japan*
- (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, *Seoul Nat'l Univ., Korea*
- (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, *Semicond. Energy Lab., Japan*
- (P-21) Influence of Active Layer Thickness on Performance and Reliability of InSnZnO Thin-Film Transistors
D. Wang¹, C. Li¹, M. Furuta¹, S. Tomai², M. Sunagawa², M. Nishimura², E. Kawashima², M. Kasami², K. Yano², ¹*Kochi Univ. of Technol., Japan*, ²*Idemitsu Kosan, Japan*
- (P-22) Highly Reliable a-IGZO TFTs with SiN_x Gate Insulator Deposited by SiF₄/N₂
H. Yamazaki¹, M. Fujii¹, Y. Ueoka¹, Y. Ishikawa¹, M. Fujiwara², E. Takahashi², Y. Uraoka¹, ¹*Nara Inst. of Sci. and Technol. (NAIST), Japan*, ²*Nissin Electric, Japan*
- (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. Kuk¹, M.-K. Song¹, S. Kwon², S. C. Youn², W. S. Park², S. -Y. Yoon², M. -K. Han¹, ¹*Seoul Nat'l Univ., Korea*, ²*LG Display, Korea*
- (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, *Semicond. Energy Lab., Japan*

- (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, *Peking Univ., China*
- (P-26) Effects of Gate Insulator on Thin Film Transistor with ZnO Channel Layer Deposited by Plasma Assisted Atomic Layer Deposition
Y. Kawamura¹, M. Horita², Y. Ishikawa², Y. Uraoka², ¹*Nara Inst. of Sci. and Technol. (NAIST), Japan*, ²*Core Res. for Evolutional Sci. and Technol. (CREST), Japan*
- (P-27) Room-Temperature Deposition of InO_x Films for Transparent Electronics by Long-Throw Magnetron Sputtering
M. -J. Chuang¹, W. -C. Tien², S. -Y. Huang², A. -K. Chu², ¹*Chienkuo Technol. Univ., Taiwan*, ²*Nat'l Sun Yat-Sen Univ., Taiwan*
- (P-28) Improved Performance of Top Contact Organic Thin Film Transistors with Bilayer WO₃/Au Electrodes
M. W. Alam, Z. Wang, S. Naka, H. Okada, *Univ. of Toyama, Japan*
- (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, *Kochi Univ. of Technol., Japan*
- (P-30) Organic Field-Effect Transistors Based on 3,7-bis [5-(4-*n*-Hexylphenyl)-2-Thienyl] Dibenzothiophene Oligomer
Z. Duan^{1,2}, Y. Yanagi¹, H. Ohuchi¹, Y. Takayanagi¹, G. Zhao², Y. Nishioka¹, ¹*Nihon Univ., Japan*, ²*Xi'an Univ. of Technol., China*
- (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, *Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*

- (P-32) OTFT with PNDT3BT-20 Dispersed Solution by Drop Casting Method
M. Trifunovic¹, T. Yokota², Y. Kato², T. Tokuhara², I. Hirata², I. Osaka³, K. Takimiya³, T. Sekitani², T. Someya², R. Ishihara¹, ¹*Delft Univ. of Technol., The Netherlands*, ²*The Univ. of Tokyo, Japan*, ³*Hiroshima Univ., Japan*

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, *Hiroshima Univ., Japan*
- (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, *Hiroshima Univ., Japan*
- (P-35) Crystallization Mechanism of a-Si and a-Ge by Soft X-Ray Irradiation
S. Kino¹, A. Heya¹, Y. Nonomura¹, N. Matsuo¹, K. Kanda¹, S. Miyamoto¹, S. Amano¹, T. Mochizuki¹, K. Toko², T. Sadoh², M. Miyao², ¹*Univ. of Hyogo, Japan*, ²*Kyusyu Univ., Japan*
- (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*
- (P-37) (111)-Oriented Large-Grain Ge on Insulator by Gold-Induced Crystallization Combined with Interfacial Layer Insertion
J. -H Park^{1,2}, T. Suzuki¹, M. Kurosawa¹, M. Miyao¹, T. Sadoh¹, ¹*Kyushu Univ., Japan*, ²*JSPS Res. Fellow, Japan*
- (P-38) Formation of Nanostructured Germanium-on-Insulator for Integration of Multi-Functional Materials on a Panel
M. Anisuzzaman¹, S. Muta¹, A. M. Hashim², M. Miyao¹, T. Sadoh¹, ¹*Kyushu Univ., Japan*, ²*Univ. of Technol. Malaysia, Malaysia*

- (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*
- (P-40) Structural and Electrical Properties of Al₂O₃ Film Grown by Mist Chemical Vapour Deposition
T. Kawaharamura, D. Wang, T. Toda, C. Li, M. Furuta, *Kochi Univ. of Technol., Japan*
- (P-41) Fabrication and Magnetic Transition in Fe-Doped Ni-P Nanoarrays by Using Electroless Plating Deposition
W. -J. Chen², S. -H. Shen¹, W. -L. Liu¹, S. -H. Hsieh¹, ¹*Nat'l Formosa Univ., Taiwan*, ²*Nat'l Yunlin Technol., Taiwan*

PVp

- (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*
- (P-44) Minority Carrier Annihilation Property for Crystalline Silicon Surfaces
J. Furukawa, T. Nagao, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*
- (P-45) RIE Texturing for mc-Si Solar Cell in SF₆/O₂/Cl₂ Gas Mixtures
K. M. Park¹, M. B. Lee², S. Y. Choi¹, ¹*Kyungpook Nat'l Univ., Korea*, ²*Daegu Technopark Nano Convergence Practical Application Ctr., Korea*

Friday, July 6

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

Chairpersons : H. Okada, *Univ. of Toyama, Japan*
A. Nathan, *Univ. of Cambridge, UK*

- 9:00 (SP-1) Thin Film Power Harvesting System for Displays (Invited)
A. Nathan¹, A. Ahnood¹, J. Edge², ¹*Univ. of Cambridge, UK*, ²*Univ. College London, UK*
- 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, *Sony, Japan*
- 9:50 (SP-3) 13.5-Inch Quarter-HD Flexible AMOLED with Crystalline Oxide FET
H. Shinoda¹, R. Komatsu¹, M. Kataniwa¹, T. Aoyama¹, K. Hatano¹, A. Chida¹, S. Kawashima¹, Y. Hirakata¹, S. Yamazaki¹, K. Yamamoto², S. Obana², ¹*Semicond. Energy Lab., Japan*, ²*Advanced Film Device, Japan*
- 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, *Univ. of Stuttgart, Germany*

— Coffee Break —

Session 4: Novel Technologies for Photovoltaics

(10: 45 ~ 12 : 30)

Chairpersons : B. Yan, *United Solar Ovonic, USA*
Y. Ishikawa, *NAIST, Japan*

- 10:45 (4-1) Photovoltaic Thin-Film Materials Characterized Using Spectroscopic Ellipsometry (Invited)
H. Fujiwara, S. Kageyama, T. Yuguchi, Y. Kanie, *Gifu Univ., Japan*

- 11:10 (4-2) Increase in Minority Carrier Lifetime Measured by Microwave Irradiation Method
T. Sameshima, K. Betsuin, T. Nagao, M. Hasumi, *Tokyo Univ. of Agriculture and Technol., Japan*
- 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, *Univ. of Michigan, USA*
- 11:50 (4-4) Fabrication of PTB7:PC71BM Bulk Hetero Junction Polymer Solar Cells by Airbrush Spray-Coating Technique
P. Kumar¹, P. -K. Shin², S. Ochiai¹, ¹*Aichi Inst. of Technol., Japan*, ²*Inha Univ., Korea*
- 12:10 (4-5) An Empirical Study on a Variety of Solar Panels in BIPV Power Conversion Applications
H. -C. Sung^{1,2}, S. Cheng², C. Y. Huang¹, C. -C. Chan¹, ¹*Industrial Technol. Res. Inst. (ITRI), Taiwan*, ²*Nat'l Chiao Tung Univ., Taiwan*

— Lunch —

Session 5 : Advanced Technologies for Thin-Film Transistor

(13: 40 ~ 14 : 50)

Chairpersons : A. de la F. Vombrock, *Hewlett Packard Labs., USA*
T. Takenobu, *Waseda Univ., Japan*

- 13:40 (5-1) Low Temperature Solution Process for Oxide TFT (Invited)
W. H. Jeong, D. L. Kim, H. J. Kim, *Yonsei Univ., Korea*
- 14:05 (5-2) Gate-Tunable Control in Graphene Semiconductive Channel (Invited)
K. Tsukagoshi¹, H. Miyazaki¹, S. -L. Li¹, A. Kanda², S. Nakaharai³, ¹*Nat'l Inst. for Material Sci. (NIMS), Japan*, ²*Univ. of Tsukuba, Japan*, ³*Advanced Industrial Sci. and Technol. (AIST), Japan*

14:30 (5-3) Reliability of Single-Grain Silicon TFTs
Fabricated from Spin-Coated Liquid-Silicon
J. Zhang¹, R. Ishihara¹, H. Takagishi², R. Kawajiri²,
T. Shimoda^{2,3}, C. I. M. Beenakker¹, ¹*Delft Univ.
of Technol., The Netherlands*, ²*Japan Sci. and
Technol., Japan*, ³*Japan Advanced Inst. of Sci.
and Technol. (JAIST), Japan*

— 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, *Univ. of Rennes 1, France*

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, *Panasonic,
Japan*

15:50 (6-3) Superior Characteristics and Reliability of Poly-
Si TFTs with Vacuum Cavities underneath Poly-
Si Gate Edges
H. -W. Liu¹, S. -M. Chiou¹, F. -H. Wang¹,
T. -K. Kang², ¹*Nat'l Chung Hsing Univ., Taiwan*,
²*Feng-Chia Univ., Taiwan*

16:10 (6-4) Effect of Intrinsic Capacitances and Time
Necessary for Channel Creation in Silicon-Based
Thin-Film Transistors
J. W. Jin¹, J. -C. Vanel¹, D. Daineka¹,
Y. Bonnassieux¹, S. Janfaoui², K. Kandoussi²,
N. Coulon², T. Mohammed-Brahim², ¹*Ecole
Polytechnique, France*, ²*Univ. of Rennes 1,
France*

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*)

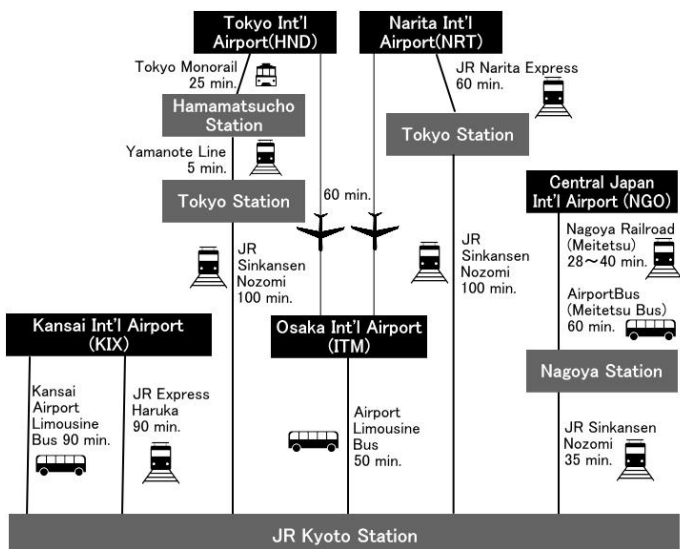
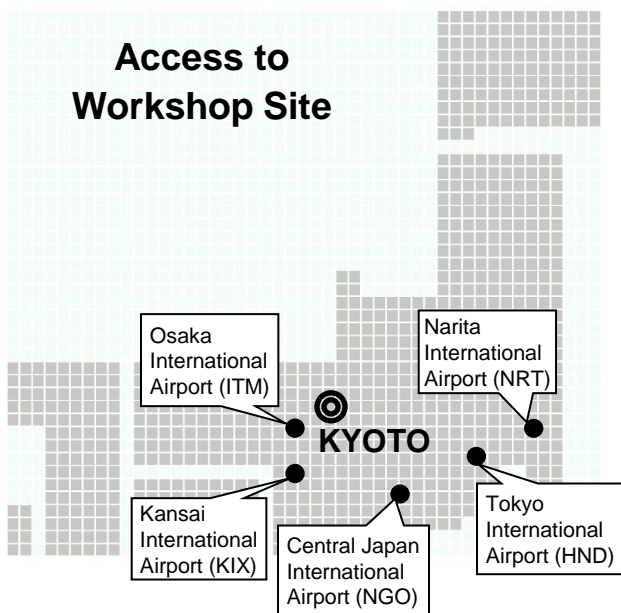
T. Kawaharamura (*Kochi Univ. of Technol.*)

T. Matsuda (*Ryukoku Univ.*)

T. Toyama (*Osaka Univ.*)

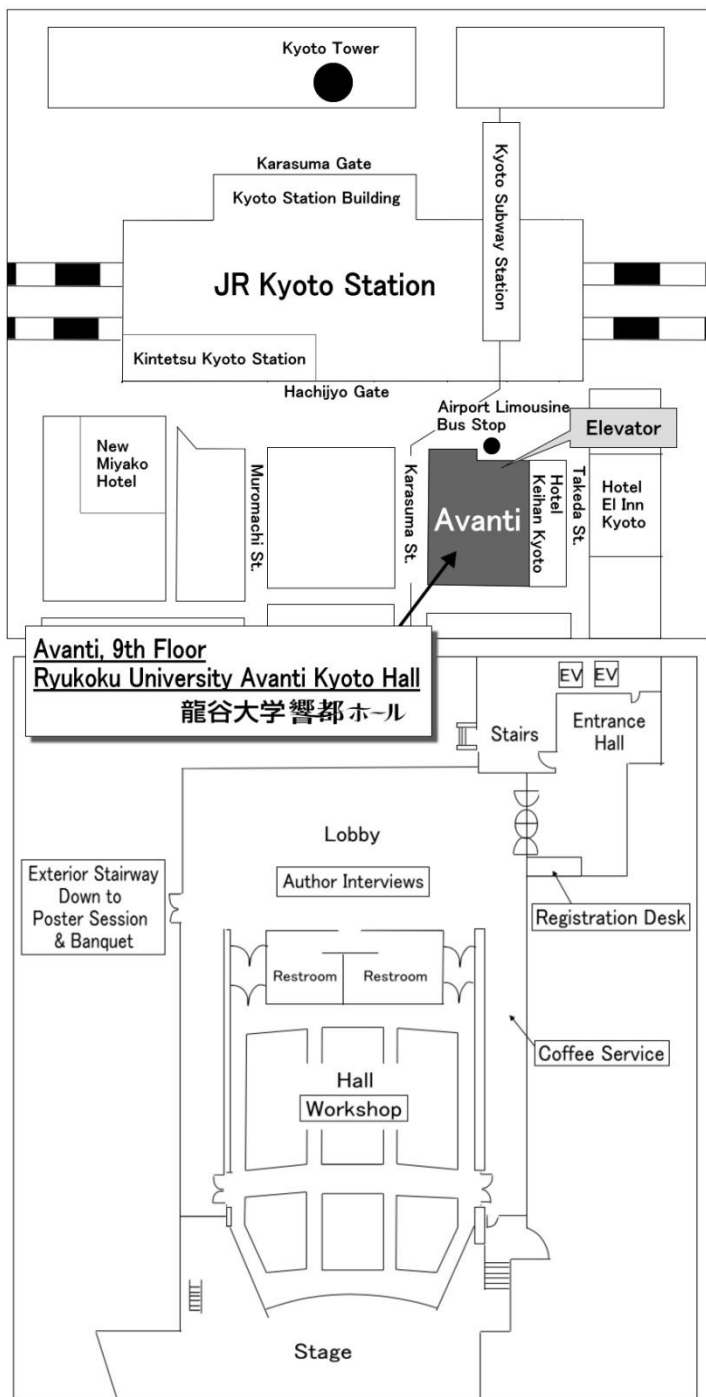
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Access to Workshop Site



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