ADVANCE PROGRAM

AM-FPD 15

THE TWENTY-SECOND INTERNATIONAL WORKSHOP ON

ACTIVE-MATRIX FLATPANEL DISPLAYS AND DEVICES

-TFT TECHNOLOGIES AND FPD MATERIALS-

JULY 1-4, 2015
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 '15 Time Table

	Wednesday, July 1		Thursday, July 2		Friday, July 3		Saturday, July 4
Registration	9:30-17:00		9:00-17:00		9:00-14:00		7:00-19:00
Tutorial	10:00-12:00	*Tutorial in Japanese*					
Workshop			9:00-10:30	**Symposium 1 :** Advances in TFT Technology for Future Application	9:00-9:50	**Session 4 :** High Performance FPD Technologies	Excursion
			10:30-10:45	*Coffee Break*	9:50-10:05	*Coffee Break*	
			10:45-12:15	**Symposium 2 :** 2D Materials for Flexible Electronics	10:05-11:05	**Session 5 :** Novel Approach on Photovoltaics	
					11:05-11:35	Late News	
	12:00-13:00	*Lunch*	12:15-13:35	*Lunch*	11:35-13:00	*Lunch*	
	13:00-13:15	Opening Session	13:35-15:05	**Symposium 3 :** Emerging Flexible Solar Cells	13:00-14:10	**Session 6 :** New Materials for Thin Film Devices	
	13:15-14:45	**Session 1 :** Keynote Address					
	14:45-15:05	*Coffee Break*			14:10-14:30	*Coffee Break*	
	15:05-16:10	**Session 2 :** Technology for Flexible Devices			14:30-15:55	**Session 7 :** Oxide and LTPS TFTs	
	16:10-16:25	*Break*					
	16:25-17:25	**Session 3 :** Oxide TFTs			15:55-16:00	Closing Remarks	
Author Interviews	17:25-17:55	Author Interviews	15:05-15:35	Author Interviews	16:00-16:30	Author Interviews	
Poster Session			15:35-18:00	**Poster Session:** FPDp / TFTp / TFMDp / PVp			
Banquet	18:10-20:10	*Banquet*					

Workshop : "Ryukoku University Avanti Kyoto Hall" (Avanti, 9th Floor)
Registration : Entrance (Avanti, 9th Floor)
Poster Session : Mariage Grande "Glove" (Avanti, 8th Floor)

Author Interviews : Lobby (Avanti, 9th Floor)
Banquet : Mariage Grande "Glove" (Avanti, 8th Floor)
Tutorial : "Ryukoku University Avanti Kyoto Hall" (Avanti, 9th Floor)

GENERAL INFORMATION

The 22nd International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD '15) will be held at Ryukoku University Avanti Kyoto Hall, Kyoto, Japan from July 1 (Wednesday) to 4 (Saturday), 2015. This international workshop was established in 1994 to present the latest research and development in Active Matrix Liquid Crystal Display technologies and their applications. In addition to AMLCDs and AMOLEDs, the scope has been widened to novel flat panel displays, materials for displays, flexible technologies, related physical phenomena and novel thin-film devices such as thin-filmtransistors(TFT), photovoltaics (PV) technologies, and other thin-film materials and devices (TFMD).

We hope that you will attend and enjoy our workshop.

SITE

Ryukoku University Avanti Kyoto Hall (Avanti 9th Floor)
31 Higashikujyo-nishisannoucho, Minami-ku, Kyoto 601-8003, Japan (see the map on page 22, 23)

AM-FPD '15 Secretariat Tel: +81-475-23-1150

WORKSHOP THEME

AM-FPD '15 will prepare an attractive program focusing on "New Stages of Thin Film Devices towards Flexible Era".

SYMPOSIUM

In addition to the regular sessions, symposia, "*Advances in TFT Technology for Future Application*", "*Emerging Flexible Solar Cells*" and "*2D Materials for Flexible Electronics*" are scheduled. Invited speakers will talk about the latest topics from the viewpoints 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	15:35-18:00, July 2		
Late News	15 min.	12 min.	3 min.

THE PROCEEDINGS OF AM-FPD '15

The Proceedings of AM-FPD '15 will be distributed from July 1 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 1	9:30-17:00
Thursday, July 2	9:00-17:00
Friday, July 3	9:00-14:00

For Advance Registration, access our online registration page (http://www.amfpd.jp) and enroll your information and complete payment by June 8(JST). Registration and other fees should be paid in Japanese yen via bank transfer*[1] or credit cards. VISA, Master, DC, AMEX, Diners, Nicos and JCB are acceptable. No personal checks are acceptable. After your payment has been confirmed, confirmation can be downloaded from our online registration page.

*[1] Bank transfer for AM-FPD
A/C No.: 3106887 Mizuho 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.

Category	Advance Registration By June 8, 2015 (JST)	On-Site Registration
WORKSHOP*[2]		
Member*[3]	¥43,000	¥48,000
Non-Member	¥45,000	¥50,000
Student*[4]	¥15,000	¥17,000
TUTORIAL		
Regular	¥5,000	¥5,000
Conference attendee & Student	¥3,000	¥3,000
OPTIONS		
Proceedings*[5] (Book format)	¥5,000	You cannot apply them on site.
Excursion	See page 3	

*[2]The registration fee of the workshop includes the admission to all sessions and USB memory of the proceedings. The banquet of AM-FPD '15 will be served without additional charge.

*[3]The member of the societies which sponsor and support AM-FPD '15. (see the front cover)

*[4]Students are required to show their ID card.

*[5]Additional JPY5,000 will be charged for those who prefer the proceedings of AM-FPD '15 in book format.

BANQUET

The banquet will be held on July 1, from 18:10 to 20:10 at Mariage Grande “Glove” on the 8th floor of Avanti.

EXCURSION TO UNIVERSAL STUDIO JAPAN

The excursion will be held on July 4, 2015, from 7:00 am to 7:00 pm. Advance registration is required for participating in this excursion.

<Participation Fee>

Workshop participant (Adult)	JPY 7,000
Accompanying person (Adult)	JPY 14,000
Accompanying person (Child)	JPY 7,000

[Adult: Aged 12 or over Child: Ages 4 to 11]

*Transportation fee by chartered bus, one day admission ticket, and insurance are included in this excursion

< Departure time >

July 4 (Sat.) 7:00 am

Please gather 10 minutes before the departure at the entrance of Kyoto Avanti building.

< Itinerary >

07:00 Depart for USJ, Osaka by bus
08:00 Arrive at USJ
***** Free activity at Universal Studio Japan *****
18:00 Depart for Kyoto Avanti hall
19:00 Arrive at Kyoto Avanti hall
19:05 Tour end

*Time will possibly be changed due to traffic jam.

< Express Pass >

Those who need Universal Express Pass, which will shorten the waiting time for attractions, should go to the USJ website and buy it by yourself.

Universal Studio Japan: http://www.usj.co.jp/e/

You can hardly enter the popular attractions such as “Harry Potter” without Universal Express Pass.

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.

CANCELLATION POLICY

In case of cancellation, a written notification should be sent to NTA by e-mail (am_fpd15@nta.co.jp) or by FAX (+81-43-225-2241) to avoid any trouble.

Cancel Charge

From June 1 to 25---------JPY 3,000
After June 26---100% of the registration fee / NO REFUND
The Proceedings of the AM-FPD '15 (USB memory) will be sent to the attendees who have paid in 100% cancellation charge after the workshop.

JAPANESE JOURNAL OF APPLIED PHYSICS SPECIAL ISSUE

The authors of the superior papers are 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. 55, No. 3, 2016). The manuscript should contain some novel, original and significant parts in addition to your presentation in AM-FPD '15.

Any papers 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 21, 2015.

Submission & Information:
https://journals.jsap.jp/jjap/special-issues/online-submission-to-jjap-special-issues /

The review schedule is as follows:
- July 21, 2015: Submission
- December, 2015: Final decision
- March, 2016: Publication

IEEE XPLORE DIGITAL LIBRARY

The Proceedings of AM-FPD '15 will be published in the IEEE Xplore digital library in around 2 months after the workshop.

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 might be handed. These classes are available for an additional fee (see page 2.)

Wednesday, July 1 (10 : 00 ～ 12 : 00)
Chairperson : S. Kuroki, *Hiroshima Univ., Japan*

10:00 (T-1) A Perspective of Next Generation Displays
Reiji Asakura, *Tsuda College, Japan*

11:00 (T-2) Basis and Recent-Progress of Solar Cells
Seigo Ito, *Univ. of Hyogo, Japan*

AWARD

Papers presented at this workshop will be considered for “AM-FPD Paper Awards”, “AMFPD-ECS Japan Section Young Researcher Award” and “JJAP Best Paper Award”. These winners will be presented at the award ceremony in AM-FPD '16 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 '15 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.

JJAP Best Paper Award

JJAP Best Paper Award will be given to an excellent original paper in the papers which will be submitted to JJAP special issue of "Active-Matrix Flatpanel Displays and Devices -TFT Technologies and FPD Materials-".

AM-FPD '14 PAPER AWARD

Best Paper Award

(6-3) Effect of Aluminum and Indium Composition on the Bias-Illumination-Stress Stability of Solution-Processed Transparent Al-In-Zn-O Thin-Film Transistors

Min-Ji Park, Jun-Yong Bak, Jeong-Seon Choi, Sung-Min Yoon, *Kyung Hee Univ., Korea*

Poster Award

(P-19) Effects of Etch Stop Layer Deposition Conditions on Stress Stabilities in Amorphous In-Ga-Zn-O Thin Film Transistors

Aya Hino, Hiroaki Tao, Yasuyuki Takanashi, Mototaka Ochi, Hiroshi Goto, Kazushi Hayashi, Toshihiro Kugimiya, *Kobe Steel, Japan*

Student Paper Award

Yana Mulyana, *Nara Inst. of Sci. and Technol., Japan*

(3-3) Oxidation of Graphene Film by Non-Thermal Treatment for New Sensing Devices

AMFPD-ECS Japan Section Young Researcher Award

Jong-Hyeok Park[1,2], [1]*Kyushu Univ., Japan,* [2]*JSPS Res. Fellow, Japan*

(3-4) Formation of Quasi-Single-Crystal Ge on Plastic by Nucleation-Controlled Au-Induced Layer-Exchange Growth for Flexible Electronics

ORGANIZING COMMITTEE

Chair: Hiroki Hamada (*Kinki Univ.*)
Vice-Chair: Hiroshi Tsutsu (*Japan Display*)
Members: Toshiaki Fujino (*Mitsubishi Electric*)
Junya Kiyota (*ULVAC*)
Yue Kuo (*Texas A&M Univ.*)
Takuya Matsuo (*Sharp*)
Hideki Ohmae (*Panasonic*)
Akira Okada (*GOIC*)
Nobuo Sasaki (*Sasaki Consulting*)
Kenji Sera (*NLT Technologies*)
Advisor : Makoto Ohkura

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Susumu Horita (*JAIST*)
Toshio Kamiya (*Tokyo Inst. of Technol.*)
Mutsumi Kimura (*Ryukoku Univ.*)
Hidehito Kitakado (*Sharp*)
Jun Koyama (*Semicond. Energy Lab.*)
Shin-Ichiro Kuroki (*Hiroshima Univ.*)
Atsushi Masuda (*AIST*)
Naoto Matsuo (*Univ. of Hyogo*)

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_fpd15@nta.co.jp

PROGRAM COMMITTEE

Chair: Shin-Ichiro Kuroki (*Hiroshima Univ.*)
Vice-Chair: Susumu Horita (*JAIST*)
Members: Hajime Akimoto (*Japan Display*)
Byung Seong Bae (*Hoseo Univ.*)
Yvan Bonnassieux (*Ecole Polytechnique*)
James Chang (*Apple*)
Norbert Fruehauf (*Univ. of Stuttgart*)
Mamoru Furuta (*Kochi Univ. of Technol.*)
Reiji Hattori (*Kyushu Univ.*)
Akira Heya (*Univ. of Hyogo*)
Yongtaek Hong (*Seoul Nat'l Univ.*)
Chi-Sun Hwang (*ETRI*)
Masanobu Ikeda (*Japan Display*)
Arichika Ishida (*Japan Display*)
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Ayumu Sato (*JOLED*)
Ruud E. I. Schropp (*Energy Res. Ctr. of the Netherlands*)
Takao Someya (*The Univ. of Tokyo*)
Kazushige Takechi (*NLT Technologies*)
Taishi Takenobu (*Waseda Univ.*)
Meng Tao (*Arizona State Univ.*)
Yung-Hui Yeh (*ITRI*)
Wen-Chang Yeh (*Shimane Univ.*)

PROGRAM

Wednesday, July 1

Opening Session (13 : 00 ～ 13 : 15)
Chairperson : Y. Uraoka, *NAIST, Japan*

Welcome Address
H. Hamada, *Kinki Univ., Japan*
Award Presentation

Session 1 : Keynote Address (13 : 15 ～ 14 : 45)
Chairpersons : S. Kuroki, *Hiroshima Univ., Japan*
Y. Uraoka, *NAIST, Japan*

13 : 15 (1-1) Display Innovations through Glass (Invited)
L. Hamilton, *Corning, USA*

13 : 45 (1-2) Outlook of Solar PV Technology: from Material to System (Invited)
M. Kondo, *Nat'l Inst. of Advanced Industrial Sci. and Technol., Japan*

14 : 15 (1-3) Principles and Possible System-on-Wafer Applications of SSI-LEDs (Invited)
Y. Kuo, *Taxas A & M Univ., USA*

― *Coffee Break* ―

Session 2 : Technology for Flexible Devices
(15 : 05 ～ 16 : 10)
Chairpersons : H. Okada, *Univ. of Toyama, Japan*
K. Takechi, *NLT Technologies, Japan*

15 : 05 (2-1) Flexible Substrates and Non-ITO Transparent Electrodes for Organic Electronics (Invited)
M. Koden, *Yamagata Univ., Japan*

15 : 30 (2-2) The Impurity Effects on OLEDs via Transient Electroluminescence Analysis
C. -F. Lin, G. -T. Lin, C. -C. Jian, *Nat'l United Univ., Taiwan*

15 : 50 (2-3) Nonvolatile Memory Performances of Transparent and/or Flexible Memory Thin-Film Transistors Using IGZO Channel and ZnO Charge-Trap Layers
S. -J. Kim, W. -H. Lee, S. -M. Yoon, *Kyung Hee Univ., Korea*

― *Break* ―

Session 3 : Oxide TFTs (16 : 25 ～ 17 : 25)

Chairpersons : N. Fruehauf, *Univ. of Stuttgart, Germany*
M. Furuta, *Kochi Univ. of Technol., Japan*

16 : 25 (3-1) Various Approaches for High Performance and Stable Oxide Thin-Film Transistors (Invited)
Y. -G. Kim, J. W. Na, W. -G. Kim, H. J. Kim, *Yonsei Univ., Korea*

16 : 50 (3-2) Threshold Voltage Shifts in Top-Gate Al-Doped ZnO TFTs by Adjusting the Position of Al Dopant Layer during the Atomic-Layer Deposition Process
E. -J. Kim, S. -M. Yoon, *Kyung Hee Univ., Korea*

17 : 10 (L-1) Improvement in Performance of Solution Processed Indium-Zinc-Tin Oxide Thin Film Transistors by Using UV Ozone Treatment on Zirconium Oxide Gate Insulator
R. N. Bukke, C. Avis, T. Kim, J. Jang, *Kyung Hee Univ., Korea*

Author Interviews (17 : 25 ～ 17 : 55)

Banquet (18 : 10 ～ 20 : 10)

Symposium 1 : Advances in TFT Technology for Future Application (9 : 00 ～ 10 : 30)

Chairpersons : Y. Kuo, *Taxas A & M Univ., USA*
S. Horita, *JAIST, Japan*

9 : 00 (S1-1) Silicon Heterojunction Thin-Film Transistors for Active-Matrix Flat-Panel and Flexible Displays (Invited)
B. Hekmatshoar, *IBM , USA*

9 : 30 (S1-2) Low Temperature Processes for Metal-Oxide Thin Film Transistors (Invited)
N. Fruehauf, M. Herrmann, H. Baur, M. Aman, *Univ. of Stuttgart, Germany*

10 : 00 (S1-3) Nitride Devices Prepared on Flexible Substrates (Invited)
H. Fujioka[1,2], K. Ueno[1], A.Kobayashi[1], J. Ohta[1], *[1]the Univ. of Tokyo, Japan, [2]Japan Sci. and Technol., Japan*

― *Coffee Break* ―

Symposium 2 : 2D Materials for Flexible Electronics (10 : 45 ～ 12 : 15)

Chairpersons : S. Jeon, *Korea Univ., Korea*
A. Heya, *Univ. of Hyogo, Japan*

10 : 45 (S2-1) Synthesis and Functionalization of Two-Dimensional Materials: Graphene, Hexagonal Boron Nitride, and Transition Metal Dichalcogenides (Invited)
H. Hibino, S. Wang, C. M. Orofeo, S. Suzuki, *NTT, Japan*

11 : 15 (S2-2) Synthesis of Flexible Graphene Transparent Conductive Films by Using Plasma Technique (Invited)
M. Hasegawa[1,2], R. Kato[2], Y. Okigawa[1,2], S. Minami[2], M. Ishihara[1,2], T. Yamada[1,2], *[1]Nat'l Inst. of Advanced Industrial Sci. and Technol., Japan [2]Technol. Res. Association for Single Wall Carbon Nanotubes, Japan*

11 : 45 (S2-3) Graphene/Transition Metal Dichalcogenide/Metal Vertical Heterostructure Transistor with Large Current ON/OFF Ratio (Invited)
R. Moriya, Y. Sata, T. Yamaguchi, Y. Inoue, N. Yabuki, S. Morikawa, S. Masubuchi, T. Machida, *the Univ. of Tokyo, Japan*

— *Lunch* —

Symposium 3 : Emerging Flexble Solar Cells
(13 : 35 ～ 15 : 05)

Chairpersons : Y. Ishikawa, *NAIST, Japan*
K. Ohdaira, *JAIST, Japan*

13 : 35 (S3-1) Theoretical and Experimental Study of Earth-Abundant Solar Cell Materials (Invited)
Y. Yan, W. -J. Yin, T. Shi, F. Hong, J. Ge, Y. Yue, W. Ke, D. Zhao, A. Cimaroli, *Univ. of Toledo, USA*

14 : 05 (S3-2) Plasmonic and Metal Oxide Systems for High Performance OLEDs and OPVs (Invited)
W. C. H. Choy, *the Univ. of Hong Kong, Hong Kong*

14 : 35 (S3-3) Efficiency Improvement of Current Gain in Organic Up-Conversion Devices by Maintaining Hole Blocking Property at Interface of Anode/Charge Generation Layer (Invited)
Y. -Z. Li[1], S. -Y. Lin[2], T. -H Su[1], S. -W. Liu[1], C. -C. Lee[2], [1]*Ming Chi Univ. of Technol., Taiwan,* [2]*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*

Author Interviews (15 : 05 ～ 15 : 35)

Poster Session (15 : 35 ～ 18 : 00)

Chairpersons : S. Kuroki, *Hiroshima Univ., Japan*
A. Heya, *Univ. of Hyogo, Japan*
S. Horita, *JAIST, Japan*
H. Okada, *Univ. of Toyama, Japan*
W. Yeh, *Shimane Univ., Japan*

FPDp

(P-1) All-Optically Controllable Scattering Mode Light Modulator Based on Azobenzene Liquid Crystals and Poly (N-Vinylcarbazole) Films
Y. -C. Liu[1], K -T. Cheng[1], Y. -D. Chen[2], A. Y. -G. Fuh[2], *[1]Nat'l Central Univ., Taiwan, [2]Nat'l Cheng Kung Univ., Taiwan*

(P-2) Improving the Efficiency of White OLEDs Based on a Gradient Refractive Index Substrate
C. -H. Chang[1], T. -F. Chang[1], Y. -J. Lo[1], Y. -H. Liang[1], Y. -J. Wu[1], H. -H. Chang[2], *[1]Yuan Ze Univ., Taiwan, [2]Vanung Univ., Taiwan*

(P-3) Production of Efficient Exciplex-Based Red, Green, Blue and White Organic Light-Emitting Diodes
C. -H. Chang[1], S. -W. Wu[1], S. -E. Lin[1], C. -W. Huang[1], C. -T. Hsieh[1], N. -P. Chen[1], H. -H. Chang[2], *[1]Yuan Ze Univ., Taiwan, [2]Vanung Univ., Taiwan*

(P-4) Electron-Transporting Layer Effects on Blue Phosphorescent Organic Light-Emitting Diodes
T. -C. Lin, T. -L. Chiu, *Yuan Ze Univ., Taiwan*

(P-5) Using Carbazole-Triazole Derives Host in Blue Phosphorescent OLEDs
Y. -H. Hung, T. -L. Chiu, *Yuan Ze Univ., Taiwan*

(P-L1) Strong Light of Red up-Conversion in a Zn O-TiO_2 Composite Containing Er^{3+} and Yb^{3+}
K. Ohyama, T. Nonaka, T. Kanamori, S. Yamamoto, *Ryukoku Univ., Japan*

(P-L2) Luminescence Characterization of LaOF:Yb^{3+}/Er^{3+} up-Conversion Phosphor
K. Ohyama, T. Nonaka, S. Yamamoto, *Ryukoku Univ., Japan*

(P-L3) Optical Properties of Distributed Inorganic EL Devices with Multi-Stripe Electrode
T. Nonaka, S. Yamamoto, *Ryukoku Univ., Japan*

(P-L4) Modeling for Carrier Transportation in Organic Light-Emitting Diode by Considering Effective Tail States
I. -H. Lu, Y. -R. Wu, *Nat'l Taiwan Univ., Taiwan*

TFTp

(P-6) Study on Hydrogenation after BLDA in Si TFT with Metal Source/Drain
K. Shimoda[1], T. Ashitomi[1], T. Okada[1], T. Noguchi[1], O. Nishikata[2], A. Ota[2], *[1]Univ. of the Ryukyus, Japan, [2]ULVAC, Japan*

(P-7) Improvement of Poly-Ge TFT Characteristics by Atomic Hydrogen Annealing
A. Heya, S. Hirano, N. Matsuo, *Univ. of Hyogo, Japan*

(P-8) A Novel Double-Gate Thin-Film Transistors with Split-Gate and RSD Design
C. -H. You , X. -Z. Chen , F. -T. Chien, *Feng Chia Univ., Taiwan*

(P-9) Effects of Over-Etching Time on the Characteristics of Amorphous IGZO Thin-Film Transistors with Back-Channel-Etch Structure
G. Wang, Z. Song, X. Xiao, S. Zhang, *Peking Univ., China*

(P-10) Fully-Transparent Mo-Doped ZnO TFTs Fabricated in Different Oxygen Partial Pressure at Low Temperature
P. Shi[1], D. Han[1,2], Y. Zhang[1,2], W. Yu[1], L. Huang[1,2], Y. Cong[1,2], X. Zhou[1,2], Z. Chen[1], J. Dong[1], S. Zhang[1], X. Zhang[1,2], Y. Wang[1,2], *[1]Peking Univ., China, [2]Beijing Engineering Res. Ctr. for Active Matrix Display, China*

(P-11) Bending Performance and Bias-Stress Stability of the In-Ga-Zn-O TFTs Prepared on Flexible PEN Substrates with Optimum Barrier Structures
M. -J. Park[1], D. -J. Yun[1], M. -K. Ryu[2], J. -H. Yang[2], J. -E. Pi[2], G. -H. Kim[2], C. -S. Hwang[2], S. -M. Yoon[1], [1]*Kyung Hee Univ., Korea,* [2]*Electronics & Telecommunication Res. Inst., Korea*

(P-12) A Study on Corbino a-IGZO TFTs with Different Bending Curvatures for Flexible Electronics
W. -C. Huang, S. -Y. Sun, C. -C. Cheng, C. -Y. Liu, M. -F. Chiang, *AU Optronics, Taiwan*

(P-13) Effect of Top Gate Bias on NBIS in Dual Gate a-IGZO TFTs
E. Lee, M. D. H. Chowdhury, J. Jang, *Kyung Hee Univ., Korea*

(P-14) Fabrication of Thienoacene-Based Organic Thin-Film Transistors with Various Interfacial Layers
S. B. Shaari[1,2], S. Naka[1], H. Okada[1], [1]*Univ. of Toyama, Japan,* [2]*Univ. Malaysia Perlis, Malaysia*

(P-L5) P-Channel Oxide Thin Film Transistors Using Sol-Gel Solution Processed Nickel Oxide
T. Lin, X. Li, J. Jang, *Kyung Hee Univ., Korea*

(P-L6) Evolution of Hydrogen-Related Defect States in Amorphous In-Ga-Zn-O Analyzed by Photoelectron Emission Yield Experiments
K. Hayashi, A. Hino, H. Tao, M. Ochi, H. Goto, T. Kugimiya, *Kobe Steel, Japan*

(P-L7) Air-Stable N-Type Organic Microribbon Transistors Based on Perylene Diimides Derivatives
P. -Y. Tseng, G. -W. Hsieh, C. -W. Wang, C. -Y. Hung, C. -W. Tsai, *Nat'l Chiao Tung Univ., Taiwan*

(P-L8) Hybrid-Type Temperature Sensor Using Thin-Film Transistors Generating Rectangle Output Waveform
H. Hayashi, K. Kito, S. Kitajima, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*

(P-L9) Temperature and Illuminance Detections by Hybrid-Type Carrier-Generation Sensors Using N-Type and P-Type Poly-Si TFTs
K. Kito, H. Hayashi, S. Kitajima, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*

(P-L10) Frequency Modulation-Type Capacitance Sensor Using Amorphous In-Ga-Zn-O Thin-Film Transistors
Y. Koga[1], T. Matsuda[1], M. Furuta[2], M. Kimura[1], *[1]Ryukoku Univ., Japan, [2]Kochi Univ. of Technol., Japan*

(P-L11) Improvement of Learning Efficiency in Neural Network Using Poly-Si TFTs by Synapse TFTs with LDD Structure
R. Morita, Y. Maeda, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*

TFMDp

(P-15) Quasi-Single Crystal SiGe on Insulator by Au-Induced Crystallization for Flexible Electronics
T. Sadoh[1], J. -H. Park[1,2], R. Aoki[1], M. Miyao[1], *[1]Kyushu Univ., Japan, [2]JSPS Res. Fellow, Japan*

(P-16) The Influence of Annealing Temperature and Film Thickness on Crystallization Behaviors of IGZO Thin Films
J. Jo[1], J. Y. Cho[1], H. K. Hong[1], S. Kim[2], J. Lee[2], J. H. Lim[2], J. Song[2], J. H. Kim[1], J. Heo[1], *[1]Chonnam Nat'l Univ., Korea, [2]Samsung Display, Korea*

(P-17) Effects of Deposition Inclination Angle on the Mechanical, Optical and Electrical Characteristics of Al-Doped ZnO Films
T. -C. Li, J. -F. Lin, *Nat'l Cheng Kung Univ., Taiwan*

(P-18) Molecular Alignment Control of Pentacene Molecules Deposited on a Photocrosslinkable Liquid-Crystalline Polymer Film with Various Thicknesses
M. Kondo, T. Nakanishi, A. Heya, N. Matsuo, N. Kawatsuki, *Univ. of Hyogo, Japan*

(P-19) Withdrawn

(P-L12) All-Solid-State Electrochromic Thin Films for Optical Iris Application
M. -C. Wang, M. -H. Hsieh, W. -H. Hsu, W. -F. Tsai, D. -J. Jan, *Inst. of Nuclear Energy Res., Taiwan*

(P-L13) Improvements of Dot-Size Uniformity of the Columnar InGaAs Quantum Dot Structures with GaAs(Sb)/AlGaAsSb Composite Layers
W. -S. Liu, H. -C. Lin, R. -Y. Liu, M. Wu, *Yuan Ze Univ., Taiwan*

PVp

(P-20) Application of Luminescence Technology for Solar PV Industry
S. -H. Lin[1], T. -H. Cheng[2], *[1]Tunghai Univ., Taiwan, [2]LiveStrong Optoelectronics, Taiwan*

(P-21) Lifetime Study of Dye Sensitized Solar Cells
C. -F. Lin, W. -G. Huang, P. -H. Chen, J. -H. Kung, *Nat'l United Univ., Taiwan*

(P-22) Dye Sensitized Solar Cells with Carbon Black as Counter Electrodes
C. -F. Lin[1], Y. -C. Chou[1], J. -F. Haung[1], P. -H. Chen[1], H. -C. Han[2], *[1]Nat'l United Univ., Taiwan, [2]Academia Sinica, Taiwan*

(P-23) Efficiency Enhancement of Top-Incident Organic Photovoltaics Using Multiple Reflection Design for Exhausting Incident Photons
T. -L. Chiu, M. Zhang, C. -H. Chen, *Yuan Ze Univ., Taiwan*

(P-24) Boron Subphthalocyanine-Based Organic Photovoltaic Device with Record High Open Circuit Voltage

P. -S. Wang[1], C. -C. Lee[1], J. -H. Lee[1], L. -Y. Wang[1], C. -F. Lin[2], T. -L. Chiu[3], *[1]Nat'l Taiwan Univ., Taiwan, [2]Nat'l United Univ., Taiwan, [3]Yuan Ze Univ., Taiwan*

(P-25) A Novel Donor-Acceptor-Acceptor Molecular for Planar Mix Heterojunction C_{60} Based Organic Solar Cells

Y. -T. Yang[1], C. -H. Chen[1], H. -C. Ting[1], K. -T. Wong[1], T. -L. Chiu[2], C. -F. Lin[3], J. -H. Lee[1], *[1]Nat'l Taiwan Univ., Taiwan, [2]Yuan Ze Univ., Taiwan, [3]Nat'l United Univ., Taiwan*

(P-26) Hydrothermal Synthesis of Eu^{3+}-Doped $NaYF_4$ Downconversion Materials for Silicon-Based Solar Cells Applications

C. -W. Liu[1], C. -L. Cheng[2], J. -Y. Yang[3], *[1]Nat'l Yunlin Univ. of Sci. and Technol., Taiwan, [2]Nat'l Formosa Univ., Taiwan, [3]Nat'l Applied Res. Labs., Taiwan*

(P-27) Annihilation Properties of Photo-Induced Carrier in Silicon PN Junction

M. Hasumi[1], T. Sameshima[1], T. Motoki[1], T. Nakamura[1], T. Mizuno[2], *[1]Tokyo Univ. of Agriculture and Technol., Japan, [2]Kanagawa Univ., Japan*

(P-28) Reduction in Optical Reflection Loss at Intermediate Adhesive Layer for Mechanical Stacked Multi-Junction Solar Cells

S. Kimura, S. Yoshidomi, M. Hasumi, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*

(P-29) Zn(O,S) Buffer Layers Grown by Atomic Layer Deposition in $Cu_2ZnSn(S,Se)_4$ Thin Film Solar Cells

H. K. Hong, I. Y. Kim, H. K. Park, J. Jo, G. Y. Song, J. H. Kim, J. Heo, *Chonnam Nat'l Univ., Korea*

(P-L14) A Wide Absorption Donor-Acceptor Active Layer for Vacuum-Deposited Organic Photovoltaic Devices with a 6.8 % Power Conversion Efficiency

Y. -Z. Li[1], T. -H. Su[1], C. -K. Wang[2], K. -T. Wong[2], S. -W. Liu[1], *[1]Ming Chi Univ. of Technol., Taiwan, [2]Nat'l Taiwan Univ., Taiwan*

Session 4 : High Performance FPD Technologies

(9 : 00 ～ 9 : 50)

Chairpersons : H. Okada, *Univ. of Toyama, Japan*
R. Hattori, *Kyushu Univ., Japan*

9 : 00 (4-1) Flexible Displays Using C-Axis-Aligned-Crystal Oxide Semiconductors (Invited)
J. Koezuka[1], K. Okazaki[1], S. Idojiri[1], Y. Shima[1], K. Takahashi[2], D. Nakamura[2], S. Yamazaki[2], *[1]Advanced Film Device, Japan, [2]Semicond. Energy Lab., Japan*

9 : 25 (4-2) Ultra-Low Power Reflective LCD Technology and Its Application for Wearable Devices (Invited)
Y. Fukunaga, T. Shima, T. Nakao, Y. Teranishi, Y. Nakajima, *Japan Display, Japan*

― *Coffee Break* ―

Session 5 : Novel Approach on Photovoltaics (10 : 05 ～ 11 : 05)

Chairpersons : W. C. H. Choy, *the Univ. of Hong Kong., Hong Kong*
S. -W. Liu, *Ming Chi Univ. of Technol., Taiwan*

10 : 05 (5-1) Heat Treatment in 110℃ Liquid Water Used for Passivating Silicon Surfaces
T. Nakamura[1], T. Motoki[1], T. Sameshima[1], M. Hasumi[1], T. Mizuno[2], *[1]Tokyo Univ. of Agriculture and Technol., Japan, [2]Kanagawa Univ., Japan*

10 : 25 (5-2) Nanocrystallized CdS for Detection of UV Light with Picowatt Sensitivity Through Single Shot KrF Laser Treatment
K. -T. Lin[1], H. -L. Chen[1], Y. -L. Liu[1], Y. -C. Tseng[1], C. -H. Lin[1], H, -M. Chang[2], J. -M. Liu[2], Y. -S. Lai[2], *[1]Nat'l Taiwan Univ., Taiwan, [2]Nat'l Applied Res. Labs., Taiwan*

10 : 45 (5-3) Cobalt Derivatives as Counter Electrodes in Dye Sensitized Solar Cells
C. -F. Lin[1], P. -H. Chen[1], T. -H. Hsieh[1], H. -C. Han[2], K. -Y. Chiu[3], *[1]Nat'l United Univ., Taiwan, [2]Academia Sinica, Taiwan, [3]Nat'l Central Univ., Taiwan*

Late News (11:05 ～ 11:35)

11 : 05 (L-2) Temperature Dependences of Conductivity in Undoped and Doped Poly-Si Thin Films Grown on YSZ Crystallization-Induction Layers by Two-Step Irradiation Method with Pulsed Laser
M. T. K. Lien, S. Horita, *Japan Advanced Inst. of Sci. and Technol., Japan*

11 : 20 (L-3) Low-Temperature Metal Double-Gate Junctionless P-Channel Polycrystalline-Germanium Thin-Film Transistors with High-K Gate Dielectric on Glass Substrate
Y. Nishimura, S. Nibe, A. Hara, *Tohoku Gakuin Univ., Japan*

― *Lunch* ―

Session 6 : New Materials for Thin Film Devices

(13: 00 ～ 14 : 10)

Chairpersons : H. Hibino, *Kwansei Gakuin Univ., Japan*
T. Matsuda, *Ryukoku Univ., Japan*

13 : 00 (6-1) Doping Stability and Opto-Electronic Performance of Chemical Vapour Deposited Graphene for Plastic Electronic Applications (Invited)
M. H. Kang, W. I. Milne, M. T. Cole, *Univ. of Cambridge, UK*

13 : 25 (6-2) A Combinatorial Device Analysis Method of Oxide Thin-Film Transistors (Invited)
S. Jeon, *Korea Univ., Korea*

13 : 50 (6-3) Unseeded Growth of Poly-Crystalline Ge with (111) Surface Orientation on Insulator by Pulsed Green Laser Annealing
M. Horita[1], T. Takao[1], Y. Nieda[1], Y. Ishikawa[1], N. Sasaki[2], Y. Uraoka[1], *[1]Nara Inst. of Sci. and Technol., Japan, [2]Japan Women's Univ., Japan*

― *Coffee Break* ―

Session 7 : Oxide and LTPS TFTs (14 : 30 ～ 15 : 55)

Chairpersons : H. J. Kim, *Yonsei Univ., Korea*
T. Noguchi, *Univ. of the Ryukyus, Japan*

14 : 30 (7-1) Prospects of Oxide TFTs Approaching LTPS (Invited)
K. -S. Park, S. Oh, P. Yun, J. U. Bae, I. B. Kang, *LG Display, Korea*

14 : 55 (7-2) Suppression of Positive Gate Bias Temperature Stress and Negative Gate Bias Illumination Stress Induced Degradations by Fluorine-Passivated In-Ga-Zn-O Thin-Film Transistors
D. Wang[1], J. Jiang[1,2], M. Furuta[1], [1]*Kochi Univ. of Technol., Japan,* [2]*Shenyang Univ. of Technol., China*

15 : 15 (7-3) Analysis of Self-Heating Phenomenon in Oxide Thin-Film Transistors under Pulsed Bias Voltage
K. Kise[1], S. Tomai[2], H. Yamazaki[1], S. Urakawa[1], K. Yano[2], D. Wang[3], M. Furuta[3], M. Horita[1], M. Fujii[1], Y. Ishikawa[1], Y. Uraoka[1], [1]*Nara Inst. of Sci. and Technol., Japan,* [2]*Idemitsu Kosan, Japan,* [3]*Kochi Univ. of Technol., Japan*

15 : 35 (7-4) Controllability of Self-Aligned Four-Terminal Planar Embedded Metal Double-Gate Low-Temperature Polycrystalline-Silicon Thin-Film Transistors on Glass Substrate
H. Ohsawa, S. Sasaki, A. Hara, *Tohoku Gakuin Univ., Japan*

Closing Remarks (15 : 55 ～ 16 : 00)

Author Interviews (16 : 00 ～ 16 : 30)

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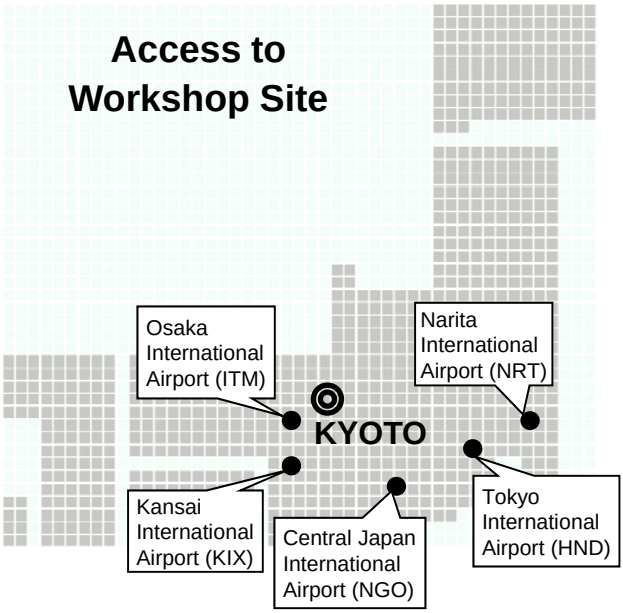

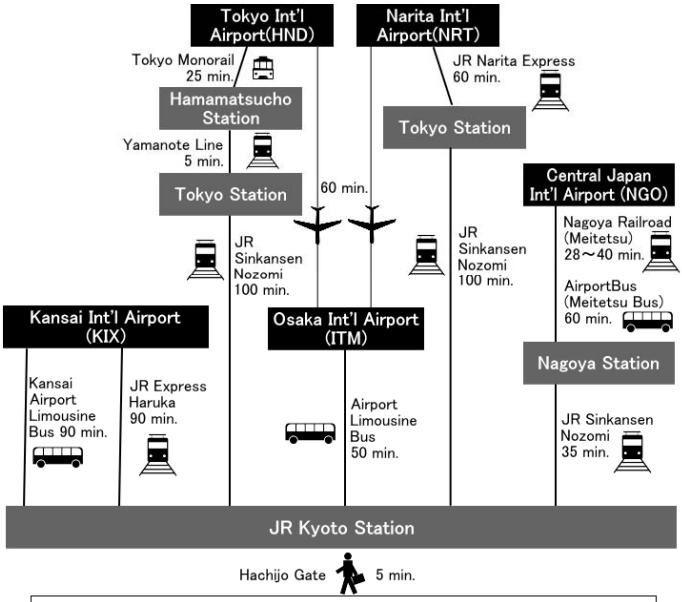

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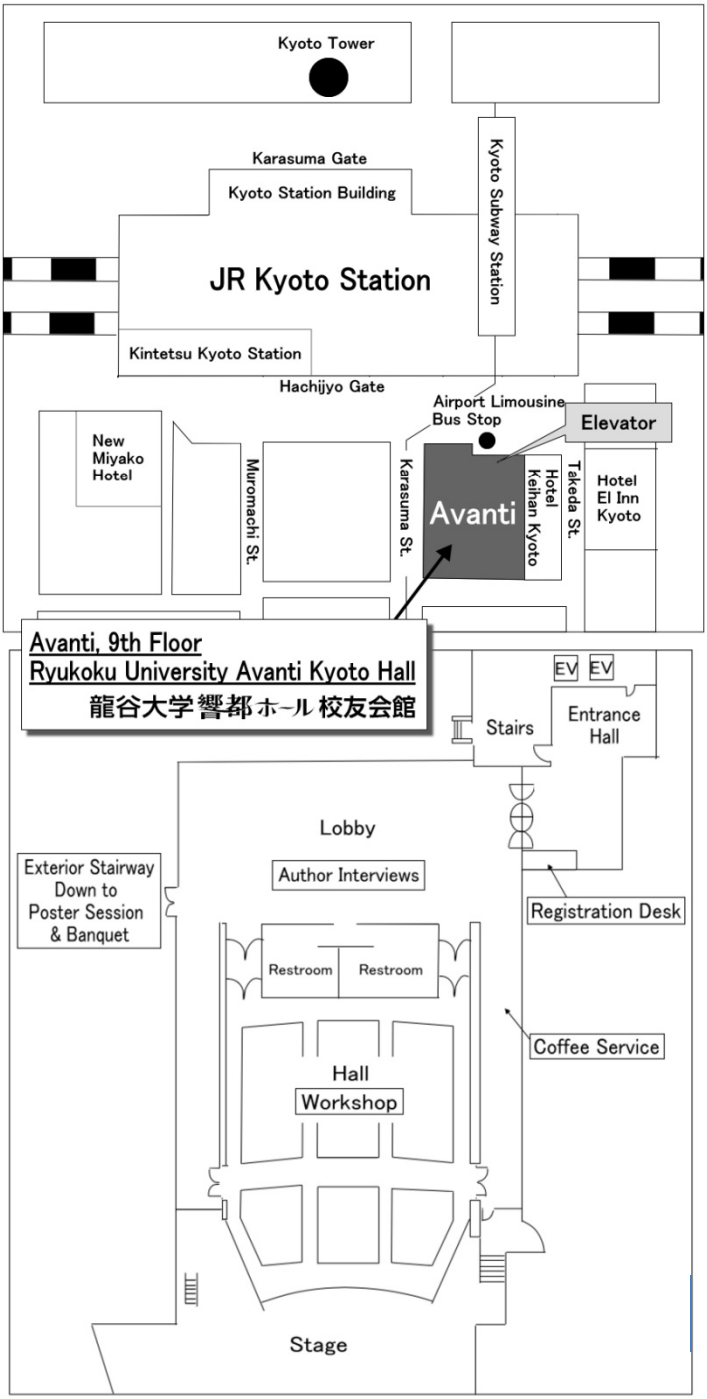
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THE TWENTY-SECOND INTERNATIONAL WORKSHOP ON ACTIVE-MATRIX FLATPANEL DISPLAYS AND DEVICES
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