



ADVANCE PROGRAM

AM-FPD 14

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

-TFT TECHNOLOGIES AND FPD MATERIALS-

JULY 2-4, 2014

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 '14 Time Table

Wednesday, July 2		Thursday, July 3		Friday, July 4	
8:30-17:00		8:30-17:00		8:30-14:00	
Registration	9:00-11:00	<i>Tutorial in Japanese</i>			
Workshop	11:10-11:25	9:00-10:30	Symposium 1 : Advanced TFT Technologies for Flexible Electronics	9:00-10:30	Session 3 : Novel Fabrication Processing for Thin-Film Materials
	11:25-12:25	10:30-10:45	<i>Coffee Break</i>	10:30-10:45	<i>Coffee Break</i>
	12:25-13:45	10:45-12:15	Symposium 2 : Novel Printing and Solution Technologies	10:45-12:10	Session 4 : PV
	13:45-15:00	12:15-13:35	<i>Lunch</i>	12:10-13:30	<i>Lunch</i>
	15:00-15:20	13:35-15:05	Symposium 3 : Advanced PV Technologies	13:30-14:40	Session 5 : Advanced Application of TFTs
	15:20-16:25			14:40-14:55	<i>Coffee Break</i>
Author Interviews	16:25-16:55	15:05-15:35	Author Interviews	14:55-16:20	Session 6 : Advanced Technologies for TFTs
Poster Session	16:55-17:25	15:35-18:00	Poster Session : FPDp / TFTp / TFMDp / PVP / LNP	16:25-16:55	Closing Remarks
Banquet	17:40-19:40			16:25-16:55	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)

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

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

GENERAL INFORMATION

The 21st International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD '14) will be held at Ryukoku University Avanti Kyoto Hall, Kyoto, Japan from July 2 (Wednesday) to 4 (Friday), 2014. This international workshop was established in 1994 to present the latest research and development in Active Matrix Liquid Crystal Display technologies and their applications. Recently, the scope has been widened to novel flat panel displays including AMLCDs, materials for displays, related physical phenomena and novel electronics systems such as thin-film transistors (TFT), photovoltaics (PV) technologies, and 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 24, 25)

AM-FPD '14 Secretariat Tel: +81-475-23-1150

SYMPOSIUM / SPECIAL SESSION

In addition to the regular sessions, symposia, “*Advanced TFT Technologies for Flexible Electronics*”, “*Advanced PV Technologies*” and “*Novel Printing and Solution Technologies*” are scheduled. And also, the special session, “*Future Display Technologies*” 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	15:35-18:00, July 3		
Late News	15 min.	12 min.	3 min.

THE PROCEEDINGS OF AM-FPD '14

The Proceedings of AM-FPD '14 will be distributed from July 2 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 2	8:30-17:00
Thursday, July 3	8:30-17:00
Friday, July 4	8:30-14:00

For Advance Registration, access our online registration page (<http://www.amfpd.jp>) and enroll your information and complete payment by June 9(JPT). 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 will be able to 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 9, 2014 (JPT)	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
OPTION		
Proceedings* ⁵ (Book format)	¥5,000	You cannot apply them on site.

*²The registration fee of the workshop includes the admission to all sessions and USB memory of the proceedings. The banquet of AM-FPD '14 will be served without additional charge.

*³The member of the societies which sponsor and support AM-FPD '14. (see the front cover)

*⁴Students are required to show their ID card.

*⁵Additional JPY5,000 will be charged for those who prefer the proceedings of AM-FPD '14 in book format.

BANQUET

The banquet will be held on July 2, from 17:40 to 19:40 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_fpd14@nta.co.jp

For hotel accommodation, please access our Web site (<http://www.amfpd.jp>) and register on the hotel accommodation page by June 9 (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.

CANCELLATION POLICY

In case of cancellation, a written notification should be sent to NTA by e-mail (am_fpd14@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 '14 (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 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. 54, No. 3, 2015). The manuscript should contain some novel, original and significant parts in addition to your presentation in AM-FPD '14.

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 12, 2014.

Submission & Information:

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

The review schedule is as follows:

- July 12, 2014: Submission
- December, 2014: Final decision
- March, 2015: Publication

IEEE Xplore Digital Library

The Proceedings of AM-FPD '14 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 2 (9 : 00 ~ 11 : 00)

Chairperson : S. Kuroki, *Hiroshima Univ., Japan*

9:00 (T-1) Organic Transistors and Flexible Electronics
- from Materials to Medical Applications-
Tsuyoshi Sekitani, *Osaka Univ., Japan*

10:00 (T-2) Future Plan of Electronic Device Industry
Wataru Izumiya, *Sangyo Times, 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 '15 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 '14 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 '13 PAPER AWARD

Best Paper Award

Jae Chul Park, *Samsung Advanced Inst. of Technol., Korea and Univ. of Yonsei, Korea*

- (8-2) High Performance Self-Aligned Top-Gate Amorphous Indium Zinc Oxide Thin-Film Transistors

Poster Award

Satoshi Urakawa, *Nara Inst. of Sci. and Technol.(NAIST), Japan*

- (P-9) Thermal Degradation and Theoretical Analysis of Amorphous Oxide Thin-Film Transistor

Student Paper Award

Masayuki Yamano, *Hiroshima Univ., Japan*

- (4-2) High Performance Poly-Si Thin-Film Transistor with One-Dimensionally Long Si Grains Using DLB Continuous-Wave Laser Lateral Crystallization

Shun Sasaki, *Tohoku Gakuin Univ., Japan*

- (8-3) Self-Aligned Planar Metal Double-Gate Low-Temperature Polycrystalline-Silicon Thin-Film Transistors on Glass Substrate

AMFPD-ECS Japan Section Young Researcher Award

Dapeng Wang, *Kochi Univ. of Technol., Japan*

- (3-3) Effect of Drain Bias on Negative Gate Bias and Illumination Stress Induced Degradation in Amorphous InGaZnO Thin-Film Transistors

ORGANIZING COMMITTEE

- Chair:** Hiroki Hamada (*Kinki Univ.*)
Vice-Chair: Hiroshi Tsutsu (*Japan Display*)
Members: Hidetsugu Kawamori (*Sharp*)
Junya Kiyota (*ULVAC*)
Yue Kuo (*Texas A&M Univ.*)
Kiyoyuki Morita (*Panasonic*)
Naoki Nakagawa (*Mitsubishi Electric*)
Nobuo Sasaki (*Sasaki Consulting*)
Kenji Sera (*NLT Technologies*)
Advisor : Makoto Ohkura

STEERING COMMITTEE

- Chair:** Yukiharu Uraoka (*NAIST*)
Vice-Chair: Hidehito Kitakado (*Sharp*)
Members: Mutsuko Hatano (*Tokyo Inst. of Technol.*)
Susumu Horita (*JAIST*)
Toshio Kamiya (*Tokyo Inst. of Technol.*)
Mutsumi Kimura (*Ryukoku Univ.*)
Jun Koyama (*Semicond. Energy Lab.*)
Shin-Ichiro Kuroki (*Hiroshima Univ.*)
Atsushi Masuda (*AIST*)
Naoto Matsuo (*Univ. of Hyogo*)
Hiroshi Tanabe (*NLT Technologies*)

Recommendation as Invited Speakers to ECS Meeting

Authors of attractive papers presented at AMFPD '14, will be recommended as invited speakers of TFT-13 or Photovoltaics for 21st century sessions. These sessions will be sponsored by the Electronics and Photonics Division of the Electrochemical Society and respectively held in Hawaii in 2016 and in Phoenix, Arizona in 2015. These papers will be selected by AMFPD award committee.

PROGRAM COMMITTEE

- Chair:** Shin-Ichiro Kuroki (*Hiroshima Univ.*)
Vice-Chair: Susumu Horita (*JAIST*)
Members: Hajime Akimoto (*Japan Display*)
Toshiaki Arai (*Sony*)
Byung Seong Bae (*Hoseo Univ.*)
Yvan Bonnassieux (*Ecole Polytechnique*)
James Chang (*Apple*)
Norbert Fruehauf (*Univ. of Stuttgart*)
Yasumori Fukushima (*Sharp*)
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*)
Ryoichi Ishihara (*Delft Univ. of Technol.*)
Yasuaki Ishikawa (*NAIST*)
Shinichi Ishizuka (*Pioneer*)
Jin Jang (*Kyung Hee Univ.*)
Takuo Kaito (*Japan Display*)
Hirotake Kajii (*Osaka Univ.*)
Toshio Kamiya (*Tokyo Inst. of Technol.*)
Jerzy Kanicki (*Univ. of Michigan*)
Hyun Jae Kim (*Yonsei Univ.*)
Masatoshi Kitamura (*Kobe Univ.*)
Dietmar Knipp (*Jacobs Univ. Bremen*)
Yuji Komatsu (*Energy Res. Ctr. of the Netherlands*)
Horng-Show Koo (*Ming-Hsin Univ. of Sci. and Technol.*)
Atsushi Masuda (*AIST*)
Tokiyoshi Matsuda (*Ryukoku Univ.*)
Kentaro Miura (*Toshiba*)
Hiroyoshi Naito (*Osaka Prefecture Univ.*)
Hiroaki Nakamura (*Idemitsu Kosan*)
Mitsuru Nakata (*NHK Sci. & Technol. Res. Labs.*)
Takashi Noguchi (*Univ. of the Ryukyus*)
Keisuke Ohdaira (*JAIST*)
Hiroyuki Okada (*Univ. of Toyama*)
Taizoh Sadoh (*Kyushu Univ.*)
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.*)
Yasuo Toko (*Stanley Electric*)
Toshihiko Toyama (*Osaka Univ.*)
Yung-Hui Yeh (*ITRI*)
Wen Chang Yeh (*Shimane Univ.*)

MEMO

PROGRAM

Wednesday, July 2

Opening Session (11 : 10 ~ 11 : 25)

Chairperson : Y. Uraoka, *NAIST, Japan*

Welcome Address

H. Hamada, *Kinki Univ., Japan*

Award Presentation

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

Chairpersons : S. Kuroki, *Hiroshima Univ., Japan*

H. Hamada, *Kinki Univ., Japan*

11 : 25 (1-1) Electronics on Plastic Foil, for Applications in Flexible OLED Displays, Sensor Arrays and Circuits (Invited)

P. Heremans^{1,2,3}, ¹*imec, Belgium*, ²*Holst Ctr., the Netherlands*, ³*Univ. of Leuven, Belgium*

11 : 55 (1-2) Development of Organic Photovoltaic and Evolution in the Future (Invited)

H. Yamaoka, *Mitsubishi Chemical, Japan*

— Lunch —

Special Session : Future Display Technologies

(13 : 45 ~ 15 : 00)

Chairpersons : H. Okada, *Univ. of Toyama, Japan*

H. Ii, *Konica Minolta, Japan*

13 : 45 (SP-1) UV²A LCD Panel with Photo-Alignment Technology (Invited)

K. Miyachi, *Sharp, Japan*

14 : 10 (SP-2) Practical Progress of IPS Photo Alignment Technology (Invited)

K. Ono, H. Matsukawa, *Panasonic Liquid Crystal Display, Japan*

14 : 35 (SP-3) High Mobility Metal Oxide Thin Film Transistors Active-Matrix Organic Light-Emitting Diode Television (Invited)

T. -H. Shih, H. -C. Ting, C. -L. Chen, L. Tsai, C. -Y. Chen, L. -F. Lin, H. -S. Lin, L. -H. Chang, Y. -H. Lin, *AU Optronics, Taiwan*

Session 2 : Emerging FPD Technologies (15 : 20 ~ 16 : 25)

Chairpersons : T. -H. Shih, *AU Optronics, Taiwan*
K. Miyachi, *Sharp, Japan*

- 15 : 20 (2-1) Development of Flexible OLED (Invited)
H. Ii, J. Fukawa, T. Tsujimura, *Konica Minolta, Japan*
- 15 : 45 (2-2) Low Resistance and High Work-Function
WO₃/Ag/MoO₂ Multilayer as Transparent Anode
for Bright Organic Light-Emitting Diodes
S. -W. Liu, C. -F. Lin, Y. -Z. Li, T. -H. Su,
Ming Chi Univ. of Technol., Taiwan
- 16 : 05 (2-3) Bistable Cholesteric Textures in Chiral
Azobenzene-Doped Liquid Crystals
K. -T. Cheng¹, A. Y. -G. Fuh², Z. -H. Wu²,
C. -K. Liu², Y. -D. Chen², ¹*Nat'l Central Univ., Taiwan*,
²*Nat'l Cheng Kung Univ., Taiwan*

Late News (16 : 25 ~ 16 : 55)

Chairpersons : T. -H. Shih, *AU Optronics, Taiwan*
K. Miyachi, *Sharp, Japan*

- 16:25 (L-1) Thermally Stable n⁺-InGaZnO Layer Stacked by
Fluorinated Silicon Nitride for Self-Aligned
Thin-Film Transistor Application
D. Wang, J. Jiang, M. Furuta, *Kochi Univ. of Technol., Japan*
- 16:40 (L-2) Hydrogen Behavior from ALD Al₂O₃ Passivation
Layer for Amorphous InGaZnO TFTs
J. Tanaka¹, Y. Ueoka², K. Yoshitsugu², M. Fujii²,
Y. Ishikawa², Y. Uraoka², K. Takechi¹, H. Tanabe¹,
¹*NLT Technologies, Japan*, ²*Nara Inst. of Sci. and Technol. (NAIST), Japan*

Author Interviews (16 : 55 ~ 17 : 25)

Banquet (17 : 40 ~ 19 : 40)

Thursday, July 3

Symposium 1: Advanced TFT Technologies for Flexible Electronics (9 : 00 ~ 10 : 30)

Chairpersons : P. Heremans, *imec, Belgium*
M. Furuta, *Kochi Univ. of Technol., Japan*

- 9 : 00 (S1-1) Heterogeneously Integrated Nanowires and Thin Films for Flexible Electronics (Invited)
W. S. Wong, M. J. Chow, M. Pathirane,
B. Iheanacho, C. -H. Lee, *Univ. of Waterloo, Canada*
- 9 : 30 (S1-2) Back Channel Etch Oxide TFT on Plastic Substrate for the Application of High Resolution TFT-LCD (Invited)
S. -H. K. Park¹, I. Y. Eom¹, J. Jin¹, H.Y. Kim¹,
H. -G. Im¹, B. -S. Bae¹, S. H. Cho², J. W. Kim²,
M. Ryu², C. -S. Hwang², ¹*Korea Advanced Inst. of Sci. and Technol.(KAIST), Korea*, ²*ETRI, Korea*
- 10 : 00 (S1-3) Ultraflexible Organic Transistor Active Matrix Using Self-Assembled Monolayer Gate Dielectrics (Invited)
T. Sekitani^{1,2,3}, M. Kaltenbrunner^{2,3},
T. Yokota^{2,3}, T. Someya^{2,3}, ¹*Osaka Univ., Japan*,
²*The Univ. of Tokyo, Japan*, ³*JST-ERATO, Japan*

— Coffee Break —

Symposium 2 : Novel Printing and Solution Technologies
(10 : 45 ~ 12 : 15)

Chairpersons : G. Gelinck, *Holst Ctr., the Netherlands*
T. Matsuda, *Ryukoku Univ., Japan*

- 10 : 45 (S2-1) Rheology Printing of Oxide Transistors (Invited)
T. Shimoda, *Japan Advanced Inst. of Sci. and Technol., Japan*
- 11 : 15 (S2-2) Mist Deposition Technology as a Green Route for Thin Film Growth (Invited)
S. Fujita, *Kyoto Univ., Japan*

- 11 : 45 (S2-3) Bar-Coated Polymer Ambipolar Field-Effect Transistors and Complementary Integrated Circuits for Large Area Electronics (Invited)
D. Khim^{1,2}, D. -Y. Kim², Y. -Y. Noh¹, ¹*Dongguk Univ., Korea*, ²*Gwangju Inst. of Sci. and Technol. (GIST), Korea*

— Lunch —

Symposium 3 : Advanced PV Technologies (13 : 35 ~ 15 : 05)

Chairpersons : K. Ohdaira, *JAIST, Japan*
J. Li, *Arizona State Univ., USA*

- 13 : 35 (S3-1) Laser Crystallised Silicon-on-Glass Thin Films and Solar Cells: Significance of the Interface (Invited)
S. Varlamov, J. Dore, *Univ. of New South Wales, Australia*
- 14 : 05 (S3-2) Heterojunction Crystalline Silicon Solar Cells Using Nanocrystalline Cubic Silicon Carbide Emitter (Invited)
S. Miyajima, *Tokyo Inst. of Technol., Japan*
- 14 : 35 (S3-3) Si-Based New Material for High-Efficiency Thin Film Solar Cells (Invited)
W. Du¹, M. Baba¹, K. Toko¹, K. O. Hara², K. Watanabe¹, T. Sekiguchi^{3,4}, N. Usami^{2,3}, T. Suemasu^{1,3}, ¹*Univ. of Tsukuba, Japan*, ²*Nagoya Univ., Japan*, ³*JST-CREST, Japan*, ⁴*Nat'l Inst. for Materials Sci., Japan*

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) Liquid Crystal Display Black Light Leakage Correlation between VA and IPS by Curvature
H. S. Jeong¹, S. W. Woo¹, S. S. Kim²,
B. D. Choi², ¹*Samsung Display, Korea*,
²*Sungkyunkwan Univ., Korea*
- (P-2) Curved Imaging of Fresnel Computer-Generated Hologram on a Liquid Crystal on Silicon Spatial Light Modulator
H. -Y. Tu¹, W. -C. Yeh², C. -J. Cheng², C. -Y. Chang²,
¹*Chinese Culture Univ., Taiwan*, ²*Nat'l Taiwan Normal Univ., Taiwan*
- (P-3) Localized Surface Plasmon Resonance Enhancement by Ag Nanoparticles in Organic Light Emitting Diodes
A. Matsuoka, N. Ohtani, *Doshisha Univ., Japan*
- (P-4) Improvement of the EL Efficiency of the Inorganic-Organic Light-Emitting Diodes by Rubrene-Doping
R. Nakagawa, Y. Jitsui, N. Ohtani, *Doshisha Univ., Japan*
- (P-5) Transmission Electron Microscope Observation of Organic-Inorganic Hybrid Films Fabricated Using Ultraviolet-Curable Silsesquioxanes
H. Akiyama, N. Ohtani, *Doshisha Univ., Japan*
- (P-6) Fabrication of Organic-Inorganic Hybrid Thin Films by Sol-Gel Process Using Tetraethoxysilane
K. Hata, N. Ohtani, *Doshisha Univ., Japan*
- (P-7) Fabrication of Organic Emissive Thin Films by Mist Deposition Method and Evaluation of Substrate Temperature Dependence
T. Ando, N. Ohtani, *Doshisha Univ., Japan*

- (P-8) Compression of Phase Image for Three-Dimensional Object
H. -Y. Tu, C. -H. Hsieh, H. -G. Hoang, *Chinese Culture Univ., Taiwan*

TFTp

- (P-9) Fabrication of Indium-Tin-Oxide Thin-Film Transistor Using Anodization
L. Xie, Y. Shao, X. Xiao, L. Zhang, X. Bi, S. Zhang, *Peking Univ., China*
- (P-10) Study on the Transition between p and n Types of SnO_x Film Deposited by DC Sputtering
S. W. Meng, L. Zhang, X. Xiao, S. Zhang, *Peking Univ., China*
- (P-11) Facile Oxygen-Plasma Approach for Depositing Silicon / Nitride Oxide on Transparent, Flexible Zinc-Oxide Thin-Film Transistors
C. -J. Wang¹, H. -C. You¹, Y. -H. Lin², ¹*Nat'l Chin-Yi Univ. of Technol., Taiwan*, ²*Nat'l United Univ., Taiwan*
- (P-12) Effect of Mid-Annealing Process on the Device Characteristics of the TFT Using Al-Doped ZnO Active Channels Prepared by Atomic Layer Deposition
E. -J. Kim, J. -Y. Bak, J. -S. Choi, S. -M. Yoon, *Kyung Hee Univ., Korea*
- (P-13) Effects of Active Layer Thickness on the Electrical Characteristics of Solution Processed In-Ga-Zn-O TFTs
Y. Hong, H. Im, J. Park, Y. Hong, *Seoul Nat'l Univ., Korea*
- (P-14) Impacts of an Al₂O₃ Capping Layer for the Fully-Patterned Top-Gate Oxide Thin-Film Transistors Using Solution-Processed PVP/Al-Zn-Sn-O Gate-Stack Structure
K. -A. Kim, J. -Y. Bak, S. -M. Yoon, *Kyung Hee Univ., Korea*
- (P-15) Extreme Bending Test of IGZO TFT
S. Hong, M. Mativenga, J. Jang, *Kyung Hee Univ., Korea*

- (P-16) Self-Aligned Amorphous Indium–Gallium–Zinc–Oxide Thin-Film Transistor Using a Two-Mask Process without Etching-Stop Layer
C. -L. Fan¹, M. -C. Shang¹, B. -J. Li¹, S. -J. Wang², W. -D. Lee³, ¹Nat'l Taiwan Univ. of Sci. and Technol., Taiwan, ²Nat'l Taipei Univ. of Technol., Taiwan, ³Lee-Ming Inst. of Technol., Taiwan
- (P-17) Improvement of Device Characteristics of Transparent Thin-Film Transistors by Using GaTiZnO/InGaZnO₄ Composite-Channel Structure
W. -S. Liu, Y. -F. Chen, Y. -M. Wang, Yuan Ze Univ., Taiwan
- (P-18) High Speed Circuit with Bulk Accumulation Mode a-IGZO TFTs
X. Li, D. Geng, J. Jang, Kyung Hee Univ., Korea
- (P-19) Effects of Etch Stop Layer Deposition Conditions on Stress Stabilities in Amorphous In-Ga-Zn-O Thin-Film Transistors
A. Hino, H. Tao, Y. Takanashi, M. Ochi, H. Goto, K. Hayashi, T. Kugimiya, Kobe Steel, Japan
- (P-20) Reliability Improvement in Amorphous InGaZnO Thin-Film Transistors Passivated by Photosensitive Polysilsesquioxane Passivation Layer
J. P. Bermundo¹, Y. Ishikawa¹, H. Yamazaki¹, T. Nonaka², Y. Uraoka¹, ¹Nara Inst. of Sci. and Technol. (NAIST), Japan, ²AZ Electronic Materials Manufacturing Japan, Japan
- (P-21) Impact of Hydrogen Diffusion on Electrical Characteristics of IGZO TFTs Passivated by SiO₂ or Al₂O₃
T. T. T. Nguyen, B. Aventurier, O. Renault, T. Terlier, J. P. Barnes, F. Templier, CEA-Leti, France
- (P-22) Effects of the Defect Creation on the Bidirectional Shift of Threshold Voltage with Hump Characteristics of InGaZnO TFTs under Bias and Thermal Stress
H. Im¹, H. Song¹, J. Jeong², Y. Hong¹, Y. Hong¹, ¹Seoul Nat'l Univ., Korea, ²Daegu Gyeongbuk Inst. of Sci. and Technol., Korea

- (P-23) Improvement in Negative-Bias-Illumination-Stress Stability of Fully-Transparent Double-Gate a-IGZO Thin-Film Transistors
D. -B. Jeon, S. -M. Yoon, *Kyung Hee Univ., Korea*
- (P-24) Understanding of the Threshold Voltage Instability in Amorphous Indium-Gallium-Zinc-Oxide Thin-Film Transistors by Bias-Temperature Illumination Test and Model Parameters
S. J. Seok, Y. H. Lee, O. Kim, *Pohang Univ. of Sci. and Technol., Korea*
- (P-25) A Novel Poly-Si Thin-Film Transistor with ONO Offset Structure
K. -Y. Liou, F. -T. Chien, *Feng-Chia Univ., Taiwan*
- (P-26) High Performance Four-Masks GOLDD TFT Structure without Additional Ion Implantation
C. -M. Chen, F. -T. Chien, *Feng-Chia Univ., Taiwan*
- (P-27) Towards the High Performance N Channel Organic Memory Transistors with Modified Polyimide Gate Dielectrics
Y. -F. Wang¹, C. -Y. Lin¹, M. -R. Tsai², H. -L. Cheng¹, W. -Y. Chou¹, ¹*Nat'l Cheng Kung Univ., Taiwan*, ²*Daxin Materials, Taiwan*
- (P-28) Charge Retention and Conduction Mechanism of DNA Memory Transistor
S. Nakamura¹, N. Matsuo¹, K. Yamana¹, A. Heya¹, T. Takada¹, M. Fukuyama², S. Yokoyama², ¹*Univ. of Hyogo, Japan*, ²*Hiroshima Univ., Japan*
- (P-29) Apoptotic Self-Organized Electronic Device Using Thin-Film Transistors for Artificial Neural Networks with Unsupervised Learning Functions
M. Kimura, T. Miyatani, Y. Fujita, T. Kasakawa, *Ryukoku Univ., Japan*

TFMDp

- (P-30) Grain Growth Induced by Micro-Thermal-Plasma-Jet Irradiation to Narrow Amorphous Silicon Strips
S. Hayashi^{1,2}, S. Morisaki¹, S. Yamamoto¹, T. Nakatani¹, S. Higashi¹, ¹*Hiroshima Univ., Japan*, ²*JSPS Research Fellow, Japan*
- (P-31) Improvement of Crystalline Quality of Poly-Si Thin Films Crystallized on YSZ Layers by New Two-Step Irradiation Method with PLA
M. T. K. Lien, S. Horita, *Japan Advanced Inst. of Sci. and Technol.(JAIST), Japan*
- (P-32) Effect of Ozone Radical Treatment for High-Performance Poly-Si TFTs
T. Hirata¹, S. Kuroki¹, M. Yamano¹, T. Sato¹, K. Kotani², T. Kikkawa¹, ¹*Hiroshima Univ., Japan*, ²*Tohoku Univ., Japan*
- (P-33) Study on Graphene on Pentacene Structure and Fabrication Process
S. Hirano, A. Heya, N. Matsuo, *Univ. of Hyogo, Japan*
- (P-34) Effects of the Inclination Angle of Polyethylene Terephthalate Substrate on Mechanical, Electrical, and Optical Properties of Al-Doped ZnO Coating Film
T. -C. Li, J. -F. Lin, *Nat'l Cheng Kung Univ., Taiwan*
- (P-35) The Characteristic of GZO Thin Film Deposited on Flexible Substrates by Using RF Magnetron Sputtering
T. -H. Chen, C. -C. Chiang, T. -Y. Chen, *Nat'l Kaohsiung Univ. of Applied Sciences, Taiwan*
- (P-36) A Design Study of Pattern-Like Micro-Circuit Lines for Touch Screen ITO Surface
P. S. Pa, *Nat'l Taipei Univ. of Education, Taiwan*
- (P-37) Tunable Multichannel Filter in a Semiconductor Photonic Quantum Well Structure
T. -C. King¹, C. -C. Wang¹, C. -J. Wu², ¹*Nat'l Pingtung Univ. of Education, Taiwan*, ²*Nat'l Taiwan Normal Univ., Taiwan*,

- (P-38) Solution-Processed Top-Gate-Type n-Channel Organic Field-Effect Transistors with Silver-Nanowire Source/Drain Electrodes Fabricated on Polymer Substrate
Y. Takatera, H. Kajii, Y. Ohmori, *Osaka Univ., Japan*
- (P-39) Withdraw
- (P-40) Built-in Electric Field at PTCDI-C₇H₁₅/Pentacene Interface Studied by Electro-Reflectance Spectroscopy
C. -R. Wu, H. -L. Cheng, W. -Y. Chou, *Nat'l Cheng Kung Univ., Taiwan*

PVp

- (P-41) Understanding the Open-Circuit Voltage of Organic Photovoltaic Devices with Donor Deposited at Different Deposition Rate
W. -C. Su, C. -C. Lee, B. -Y. Huang, W. -C. Chang, *Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*
- (P-42) Investigation of a-Si:H Films Passivation Quality by ECRCVD and Application of Silicon Heterojunction Solar Cells
Y. -H. Chu, C. -C. Lee, T. -H. Chang, Y. -L. Hsieh, J. -Y. Chang, T. Li, I. -C. Chen, *Nat'l Central Univ., Taiwan*
- (P-43) Decrease in Reflection Loss at Intermediate Adhesive Layer for Mechanical Stacking Multi Junction Solar Cells
S. Yoshidomi, N. Fujii, J. Furukawa, M. Hasumi, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*
- (P-44) Characteristics of Si pn Junction Diode Fabricated by Sputtering Epitaxy
W. Yeh^{1,2}, H. Huang², ¹*Shimane Univ., Japan*, ²*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*
- (P-45) Passivation of Silicon Surfaces by Oxygen Radical Followed by High Pressure H₂O Vapor Heat Treatments and Its Application to Solar Cell Fabrication
S. Shigeno, S. Yoshidomi, M. Hasumi, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*

- (P-46) Passivation of Silicon Surfaces by Heat Treatment in Boiled Water and Its Application of Solar Cells
T. Nakamura, S. Yoshidomi, M. Hasumi, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*
- (P-47) Growth of Hydrogenated Microcrystalline Silicon Thin Films Using Electron Cyclotron Resonance Chemical Deposition Method
T. -H. Chang, Y. -H. Chu, C. -C. Lee, J. -Y. Chang, T. T. Li, I -C. Chen, *Nat'l Central Univ., Taiwan*
- (P-48) Fabrication of Vertical Aligned ZnO Nanorods on AZO Thin Film for Photovoltaic Applications
C. Li, S. Hou, X. Li, T. Kawaharamura, M. Furuta, *Kochi Univ. of Technol., Japan*
- (P-49) Using a Ti/TiN Composite Structure as the Diffusion Barrier Layer for CIGS Solar Cell Application on Stainless Steel Substrates
W. -S. Liu¹, H. -C. Hu¹, N. -W. Pu¹, S. -C. Liang², ¹*Yuan Ze Univ., Taiwan*, ²*Chung-Shan Inst. of Sci. and Technol., Taiwan*
- (P-50) Microstructural Modification of Polycarbazole-Based Polymeric Solar Cells by Thermal Annealing
F. -C. Wu, T. -B. Wu, H. -L. Cheng, W. -Y. Chou, F. -C. Tang, *Nat'l Cheng Kung Univ., Taiwan*
- (P-51) Microstructural-Dependent Photovoltaic Properties of Polymer Solar Cells Based on Different Fullerene Derivatives
K. -C. Tung, W. -C. Cheng, F. -C. Wu, H. -L. Cheng, *Nat'l Cheng Kung Univ., Taiwan*
- (P-52) Fabrication and Characterization of Organic Solar Cells Containing ZnO Nanoparticles in Active Layer
R. Nakajima¹, S. Saravanan², N. Ohtani¹, ¹*Doshisha Univ., Japan*, ²*Sona College of Technol., India*

- (P-53) Bulk Heterojunction Organic Solar Cells
Fabricated by Mist Deposition Method by
Ultrasonic Oscillation
S. Izumi, A. Emoto, N. Ohtani, *Doshisha Univ.,
Japan*

LNp

- (P-L1) Effect of ITO-Free Ni/Ag/Ni Electrode on
Flexible Blue Phosphorescent Organic Light-
Emitting Diodes
H. W. Lee¹, S. E. Lee¹, J. W. Lee¹, Y. Sun¹,
H. J. Yang¹, S. Lee¹, H. K. Yoo¹, K. M. Hwang¹,
J. Park², Y. K. Kim¹, ¹*Hongik Univ., Korea,*
²*Hallym Univ., Korea*
- (P-L2) Evaluation of Photoconductivities in Diode
Connections Using n-ch, p-ch, and pin-ch Poly-
Si TFTs for Photosensor Application
T. Fuchiya, Y. Maeda, T. Kadonome, T. Tanaka,
T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-L3) Crack Propagation in Nonalkaline Glass Activated
by Laser-Crystallized Polycrystalline Silicon Films
A. Hara¹, K. Goto¹, K. Kitahara², ¹*Tohoku
Gakuin Univ., Japan,* ²*Shimane Univ., Japan*
- (P-L4) Low Temperature ZnO TFT Fabricated on SiO_x
Gate Insulator Deposited by Facing Electrodes
Chemical Vapor Deposition
T. Matsuda¹, M. Furuta², T. Hiramatsu²,
H. Furuta², M. Kimura¹, T. Hirao², ¹*Ryukoku
Univ., Japan,* ²*Kochi Univ. of Technol., Japan*
- (P-L5) Comparison of Defects in Crystalline Oxide
Semiconductor Materials by Electron Spin
Resonance
T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-L6) Characteristics of Up-Conversion Phosphor
Prepared Using the MOD Method
S. Yamamoto, K. Ohyama, T. Nonaka,
T. Kanamori, *Ryukoku Univ., Japan*

- (P-L7) Multi-Electrode Array Technologies for Distributed-Type Inorganic EL Displays
T. Nonaka¹, Y. Uraoka², N. Taguchi³,
S. Yamamoto¹, ¹*Ryukoku Univ., Japan*, ²*Nara Inst. of Sci. and Technol. (NAIST), Japan*, ³*Image Tech, Japan*
- (P-L8) Calcium Test of Highly Efficient Gas Barrier Films Fabricated by Atomic Layer Deposition
C. -M. Hsu¹, W. -T. Wu¹, K. -C. Wu¹,
I. -S. Tseng¹, D. -C. Kong², H. -E. Yin²,
¹*Southern Taiwan Univ. of Sci. and Technol., Taiwan*, ²*ITRI, Taiwan*
- (P-L9) Evaluation of Temperature Dependences of Transistor Characteristics in n-type, p-type, and pin-type Poly-Si TFTs for Temperature Sensor Application
K. Kito, H. Hayashi, T. Matsuda, M. Kimura ,
Ryukoku Univ., Japan

Friday, July 4

Session 3 : Novel Fabrication Processing for Thin-Film Materials (9 : 00 ~ 10 : 30)

Chairpersons : Y. -Y. Noh, *Dongguk Univ., Korea*
A. Heya, *Univ. of Hyogo, Japan*

- 9 : 00 (3-1) Solving the Technology Barriers in Flexible AMOLED Displays (Invited)
G. Gelinck¹, J. -L. van der Steen¹, A. Tripathi¹, T. Ellis¹, H. Akkerman¹, L. van Leuken¹, F. Li¹, J. Maas¹, E. Smits¹, M. Rovers¹, M. Nag², K. Myny², P. Malinowski², M. Ameys², T. H. Ke², S. Schols², S. Steudel², J. Genoe^{2,3}, P. Heremans², ¹*Holst Ctr., the Netherlands*, ²*imec, Belgium*, ³*KULeuven, Belgium*
- 9 : 25 (3-2) Novel Functional Devices of Transition Metal Dichalcogenide Monolayers (Invited)
T. Takenobu¹, J. Pu¹, L. -J. Li², Y. Iwase³, ¹*Waseda Univ., Japan*, ²*Academia Sinica, Taiwan*, ³*The Univ. of Tokyo, Japan*
- 9 : 50 (3-3) Oxidation of Graphene Film by Non-Thermal Treatment for New Sensing Devices
Y. Mulyana, M. Uenuma, Y. Ishikawa, Y. Uraoka, *Nara Inst. of Sci. and Technol. (NAIST), Japan*
- 10 : 10 (3-4) Formation of Quasi-Single-Crystal Ge on Plastic by Nucleation-Controlled Au-Induced Layer-Exchange Growth for Flexible Electronics
J. -H. Park^{1,2}, M. Miyao¹, T. Sadoh¹, ¹*Kyusyu Univ., Japan*, ²*JSPS Research Fellow, Japan*

— Coffee Break —

Session 4 : PV (10 : 45 ~ 12 : 10)

Chairpersons : W. Yeh, *Shimane Univ., Japan*
Y. Ishikawa, *NAIST, Japan*

- 10 : 45 (4-1) Enhanced External Quantum Efficiency Employing Organic Anode Interfacial Layers (Invited)
K. Klimes, T Fleetham, J. Li, *Arizona State Univ., USA*

- 11 : 10 (4-2) Application of Highly Conductive DMSO-Treated PEDOT:PSS Electrodes to Flexible Organic Solar Cells
R. Nagata¹, Y. Yanagi¹, S. Fujii², H. Kataura², Y. Nishioka¹, ¹*Nihon Univ., Japan*, ²*Nat'l Inst. of Advanced Industrial Sci. and Technol.(AIST), Japan*
- 11 : 30 (4-3) Reduction of Leakage Currents in Organic Photovoltaics with WO_x Doping in PEDOT:PSS
A. Kanwat, P. G. Raj, J. Jang, *Kyung Hee Univ., Korea*
- 11 : 50 (4-4) Enhanced Efficiency of Silicon-Based Solar Cell by Surface Plasmon Resonance Effects over Device Electrode
K. -T. Lin¹, Y. -M. Chi¹, H. -L. Chen¹, S. -C. Tseng¹, H. -M. Chang², Y. -C. Liao², S. -H. Chen², Y. -S. Lai², ¹*Nat'l Taiwan Univ., Taiwan*, ²*Nat'l Nano Device Labs., Taiwan*

— Lunch —

Session 5 : Advanced Application of TFTs (13: 30 ~ 14 : 40)

Chairpersons : L. Petti, *Swiss Federal Inst. of Technol., Switzerland*
H. Tanabe, *NLT Technologies, Japan*

- 13 : 30 (5-1) LTPS TFT Technology on Flexible Substrates for Sensor Applications (Invited)
G. Fortunato¹, L. Maiolo¹, F. Maita¹, A. Minotti¹, S. Mirabella¹, V. Strano¹, G. Metta², D. Ricci², A. Pecora¹, ¹*IMM-CNR, Italy*, ²*Italian Inst. of Technol., Italy*
- 13 : 55 (5-2) Applying Amorphous InGaZnO-TFT to RFID Tag (Invited)
T. Kawamura¹, H. Ozaki¹, H. Wakana¹, T. Yamazoe¹, H. Uchiyama¹, M. Hatano², ¹*Hitachi, Japan*, ²*Tokyo Inst. of Technol., Japan*

- 14 : 20 (5-3) Light Irradiation and Applied Voltage History Sensors Using Amorphous In-Ga-Zn-O Thin-Film Transistors Exposed to Ozone Annealing and Fabricated under High Oxygen Pressure
M. Kimura¹, T. Hasegawa¹, T. Matsuda¹, K. Ide², K. Nomura², T. Kamiya², H. Hosono², ¹*Ryukoku Univ., Japan*, ²*Tokyo Inst. of Technol., Japan*

— Coffee Break —

Session 6 : Advanced Technologies for TFTs

(14 : 55 ~ 16 : 20)

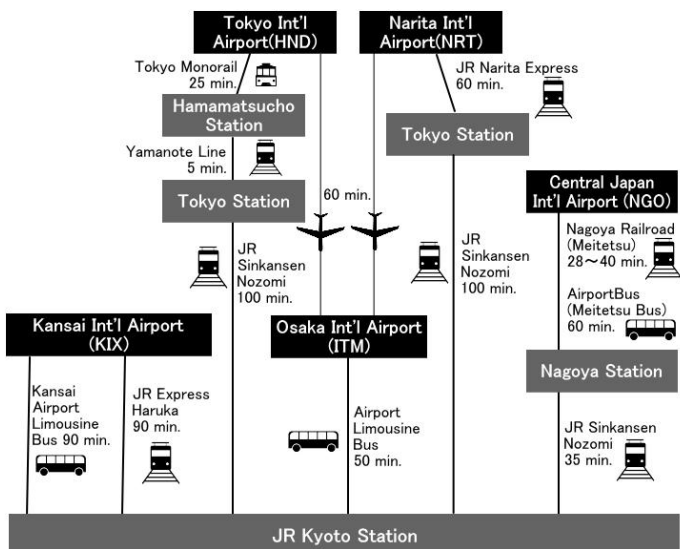
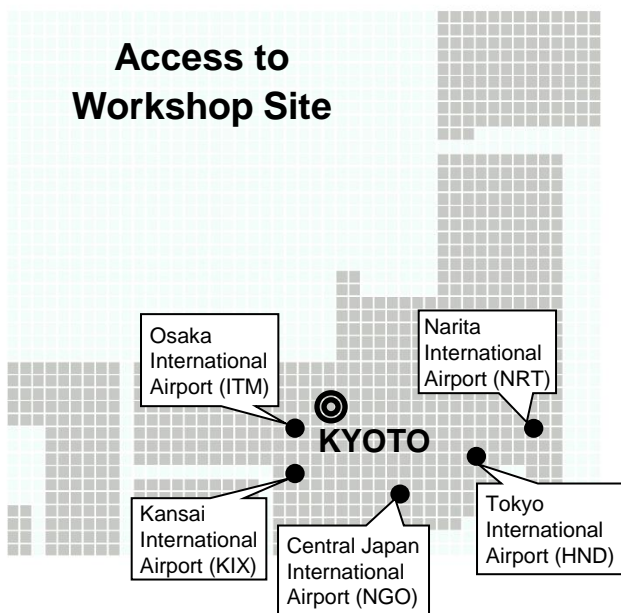
Chairpersons : G. Fortunato, *IMM-CNR, Italy*
T. Arai, *Sony, Japan*

- 14 : 55 (6-1) Flexible Electronics Based on Oxide Semiconductors (Invited)
L. Petti, N. Münzenrieder, G. A. Salvatore, C. Zysset, T. Kinkeldei, L. Büthe, C. Vogt, G. Tröster, *Swiss Federal Inst. of Technol., Switzerland*
- 15 : 20 (6-2) Homojunction In₂O₃-TFTs Prepared by Anodization Technique
P. Zhang, X. Xiao, L. Wang, Y. Shao, S. Zhang, *Peking Univ., China*
- 15 : 40 (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
M. -J. Park, J. -Y. Bak, J. -S. Choi, S. -M. Yoon, *Kyung Hee Univ., Korea*
- 16 : 00 (6-4) High Performance Raised Source/Drain Thin Film Transistor with Field Plate Design
K. -T. Lin, F. -T. Chien, *Feng Chia Univ., Taiwan*

Closing Remarks (16 : 20 ~ 16 : 25)

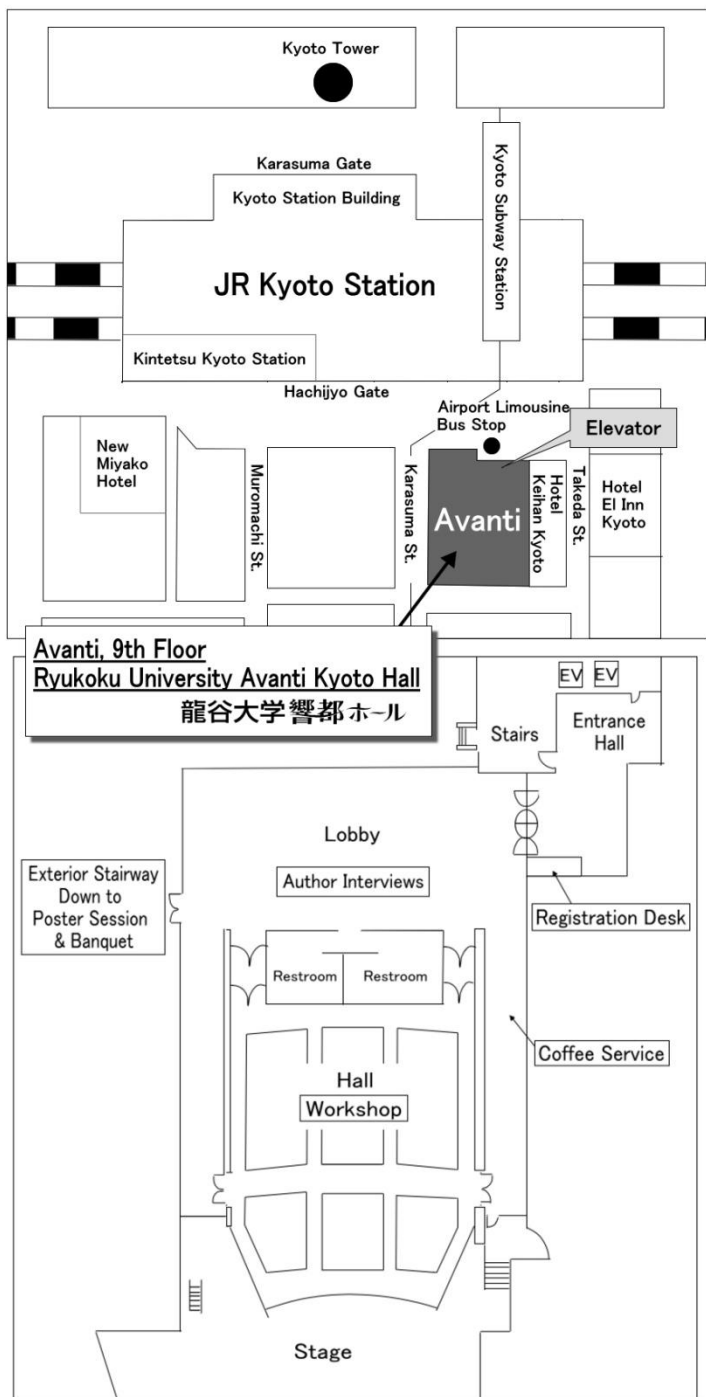
Author Interviews (16 : 25 ~ 16 : 55)

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