

# PROGRAM

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# AM-FPD 17

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

-TFT TECHNOLOGIES AND FPD MATERIALS-

JULY 4-7, 2017

Ryukoku University Avanti Kyoto Hall  
Kyoto, Japan

**Sponsorship:**

International Society of Functional Thin Film Materials & Devices

**Co-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

**In cooperation with:**

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

# GENERAL INFORMATION

The 24th International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD '17) will be held at Ryukoku University Avanti Kyoto Hall, Kyoto, Japan from July 4 (Tuesday) to 7 (Friday), 2017. 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-film transistors(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 29, 30)

AM-FPD '17 Secretariat Tel: +81-475-23-1150

## **WORKSHOP THEME**

AM-FPD '17 will prepare an attractive program focusing on “Leap to the Future Devices”.

## **SYMPOSIUM**

In addition to the regular sessions, symposia, “*Expansion of TFT Applications*”, “*Progress in Perovskite Solar Cells*” and “*Low Dimensional Materials for Thin-Film Devices*” 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 6		
Late News	15 min.	12 min.	3 min.

## **THE PROCEEDINGS OF AM-FPD '17**

The Proceedings of AM-FPD '17 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 Tuesday to Friday.

The registration hours are as follows:

Tuesday, July 4	9:30-17:00
Wednesday, July 5	9:30-17:00
Thursday, July 6	9:15-17:00
Friday, July 7	9:15-14:00* <sup>1</sup>

For Advance Registration, access our online registration page (<http://www.amfpd.jp>) and enroll your information and complete payment by June 7(JST). Registration and other fees should be paid in Japanese yen via bank transfer\*<sup>2</sup> or credit cards. VISA, Master, DC, AMEX, Diners, Nicos and JCB are acceptable. After your payment has been confirmed, confirmation can be downloaded from our online registration page.

\*<sup>1</sup> Only cash is acceptable as a means of payment on July 7, 2017.

\*<sup>2</sup> 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 7, 2017(JST)	On-Site Registration
<b>WORKSHOP*<sup>3</sup></b>		
Member* <sup>4</sup>	¥50,000	¥55,000
Non-Member	¥52,000	¥57,000
Student* <sup>5</sup>	¥20,000	¥22,000
<b>TUTORIAL</b>		
Regular	¥7,000	¥7,000
Conference attendee & Student	¥5,000	¥5,000

\*<sup>3</sup>The registration fee of the workshop includes the admission to all sessions and USB memory of the proceedings. The banquet of AM-FPD '17 will be served without additional charge.

\*<sup>4</sup>The member of the societies which sponsor and support AM-FPD '17 (see the front cover)

\*<sup>5</sup>Students are required to show their ID card.

## **BANQUET**

The banquet will be held on July 5, from 18:00 to 20:00 at Mariage Grande “Glove” on the 8th floor of Avanti.

## **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\_fpd17@nta.co.jp) or by FAX (+81-43-225-2241) to avoid any trouble.

### **Cancel Charge**

From June 8 to 26-----JPY 3,000

After June 27---100% of the registration fee / NO REFUND

The Proceedings of the AM-FPD '17(USB memory) will be sent to the attendees who have paid in 100% cancellation charge after the workshop.

### **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\_fpd17@nta.co.jp

# **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. 57, No. 3S1, 2018). The manuscript should contain some novel, original and significant parts in addition to your presentation in AM-FPD '17.

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 23, 2017.

Submission & Information:

<https://journals.jsap.jp/jjap/special-issues/online-submission-to-jjap-special-issues/>

The review schedule is as follows:

- July 23, 2017: Submission
- Mid-December, 2017: Final decision
- March, 2018: Publication

### **BENEFIT**

1. The publication charge is a lower price of 20000JPY/article.
2. An accepted article is published online on IOP science as early as about 6 months after submission.
3. Open access or free access is available for any accepted article for one year after the publication.
4. One excellent original paper is honored as Best Paper Award in AM-FPD'17 from the accepted ones.

### **IEEE XPLORE DIGITAL LIBRARY**

The Proceedings of AM-FPD '17 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.)

**Tuesday, July 4** (10 : 00 ~ 12 : 00)

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

10:00 (T-1) Organic Light-Emitting Diode: From Basic Theory to Emerging Research  
Mutsumi Kimura, *Ryukoku Univ., Japan*

11:00 (T-2) Development of Flexible and Light-Weight Perovskite Solar Cells  
Masashi Ikegami, *Toin Univ. of Yokohama, 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 '18 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 '17 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 '16 PAPER AWARD

## **Best Paper Award**

- (7-3) Comparative Study on Light-Induced Negative-Bias Stress Stabilities in Amorphous In-Ga-Zn-O Thin Film Transistors with Photoinduced Transient Spectroscopy  
Kazushi Hayashi, Mototaka Ochi, Aya Hino, Hiroaki Tao, Hiroshi Goto, Toshihiro Kugimiya, *Kobe Steel, Ltd., Japan*

## **Poster Award**

- (P-57) Fully Printable Mesoscopic Perovskite Solar Cells; Effect of NiO Layer on the Device Performance  
Nirmal Peiris<sup>1,2</sup>, Gai Mizuta<sup>1</sup>, Hiroyuki Kanda<sup>1</sup>, Tomoya Nishina<sup>1</sup>, Seigo Ito<sup>2</sup>, Hiroshi Segawa<sup>1</sup>, <sup>1</sup>*The Univ. of Tokyo, Japan*, <sup>2</sup>*Univ. of Hyogo, Japan*
- (P-43) Study on Graphene Formation by Hot Mesh Deposition  
Satoshi Fuji, Akira Heya, Naoto Matsuo, *Univ. of Hyogo, Japan*

## **Student Paper Award**

- Yeo-Myeong Kim, *Kyung Hee Univ., Korea*
- (2-3) Brain-Like Synaptic Operations of Thin-Film Transistors Using In-Ga-Zn-O Active Channel and PVP-SBA Electrolytic Gate Insulator

## **AMFPD-ECS Japan Section Young Researcher Award**

- Keisuke Ide, *Tokyo Inst. of Technol., Japan*
- (7-2) Why High-Pressure Sputtering must be Avoided to Deposit a-In-Ga-Zn-O Films

## **Paper Award**

- (L-1) Charge Effects of Ultrafine FET with Nanodot Type Floating Gate  
Takahiko Ban<sup>1</sup>, Shinji Migita<sup>2</sup>, Yukiharu Uraoka<sup>3</sup>, Shinichi Yamamoto<sup>1</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Nat'l Inst. of Advanced Industrial Sci. and Technol., Japan*, <sup>3</sup>*Nara Inst. of Sci. and Technol., Japan*
- (5-1) Laser Deposition for the Controlled Co-Deposition of Organolead Halide Perovskite  
Tetsuhiko Miyadera, Takeshi Sugita, Hitoshi Tampo, Koji Matsubara, Masayuki Chikamatsu, *Nat'l Inst. of Advanced Industrial Sci. and Technol. (AIST), Japan*

## **ORGANIZING COMMITTEE**

- Chair:** Hiroki Hamada (*Kinki Univ.*)  
**Vice-Chair:** Hiroshi Tsutsu (*Japan Display*)  
**Members:** Toshiaki Fujino (*Mitsubishi Electric*)  
Taketsugu Itoh (*Corning Japan*)  
Junya Kiyota (*ULVAC*)  
Yue Kuo (*Texas A&M Univ.*)  
Atsushi Masuda (*AIST*)  
Takuya Matsuo (*Sharp*)  
Kenichirou Nishida (*Panasonic Liquid Crystal Display*)  
Akira Okada (*Okayama Univ.*)  
Nobuo Sasaki (*Sasaki Consulting*)  
Kenji Sera (*NLT Technologies*)  
**Advisor :** Makoto Ohkura

## **STEERING COMMITTEE**

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**Vice-Chair:** Hiroshi Tanabe (*NLT Technologies*)  
**Members:** Toshiaki Arai (*JOLED*)  
Takahiko Ban (*Ryukoku Univ.*)  
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.*)  
Naoto Matsuo (*Univ. of Hyogo*)  
Hiroyuki Okada (*Univ. of Toyama*)



## **PROGRAM COMMITTEE**

- Chair:** Hiroyuki Okada (*Univ. of Toyama*)
- Vice-Chairs:** Susumu Horita (*JAIST*)  
Sung-Min Yoon (*Kyung Hee Univ.*)  
Shun-Wei Liu (*Ming-Chi Univ. of Technol.*)  
Norbert Fruheauf (*Univ. of Stuttgart*)  
Yue Kuo (*Texas A&M Univ.*)  
Meng Tao (*Arizona State Univ.*)
- Members:** Hajime Akimoto (*Japan Display*)  
Byung Seong Bae (*Hoseo Univ.*)  
Yvan Bonnassieux (*Ecole Polytechnique*)  
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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Yasuaki Ishikawa (*NAIST*)  
Jin Jang (*Kyung Hee Univ.*)  
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Toshio Kamiya (*Tokyo Inst. of Technol.*)  
Hyun Jae Kim (*Yonsei Univ.*)  
Masatoshi Kitamura (*Kobe Univ.*)  
Dietmar Knipp (*Jacobs Univ. Bremen*)  
Chih-Lung Lin (*Nat'l Cheng Kung Univ.*)  
Tokiyoshi Matsuda (*Ryukoku Univ.*)  
Masahiro Mitani (*Sharp*)  
Hiroyoshi Naito (*Osaka Prefecture Univ.*)  
Hiroaki Nakamura (*Idemitsu Kosan*)  
Mitsuru Nakata (*JAPAN BROADCASTING*)  
Takashi Noguchi (*Univ. of the Ryukyus*)  
Keisuke Ohdaira (*JAIST*)  
Taizoh Sadoh (*Kyushu Univ.*)  
Nobuyoshi Saito (*Toshiba*)  
Ruud E. I. Schropp (*Eindhoven Univ. of Technol.*)  
Kazushige Takechi (*NLT Technologies*)  
Taishi Takenobu (*Nagoya Univ.*)  
Yasuhiro Terai (*JOLED*)  
Yung-Hui Yeh (*ITRI*)  
Wen-Chang Yeh (*Shimane Univ.*)  
Atsushi Wakamiya (*Kyoto Univ.*)

# PROGRAM

Tuesday, July 4

**Opening Session** (13 : 30 ~ 13 : 45)

**Chairperson :** Y. Uraoka, *NAIST, Japan*

## **Welcome Address**

H. Hamada, *Kinki Univ., Japan*

## **Award Presentation**

**Special Session : Novel Displays** (13 : 45 ~ 14 : 55)

**Chairpersons :** H. Tsutsu, *Japan Display, Japan*

R. Hattori, *Kyushu Univ., Japan*

- 13 : 45 (SP-1) Highly Transparent LCD Using New Scattering-Type Liquid Crystal with Field Sequential Color Edge Light (Invited)  
Y. Numata, K. Okuyama, T. Nakahara,  
T. Nakamura, M. Mizuno, H. Sugiyama,  
S. Nomura, S. Takeuchi, Y. Oue, H. Kato, S. Ito,  
A. Hasegawa, T. Ozaki, M. Douyou, T. Imai,  
K. Takizawa, S. Matsushima, *Japan Display, Japan*
- 14 : 10 (SP-2) Retinal Imaging Laser Eyewear with Focus-Free and Augmented Reality (Invited)  
M. Sugawara, M. Suzuki, N. Miyauchi, *QDLaser, Japan*
- 14 : 35 (SP-3) Visual Fatigue for Laser-Projection Light-Field 3D Display in Contrast with 2D Display  
Y. Han<sup>1</sup>, H. Y. Lin<sup>1</sup>, C. -Y. Chen<sup>2</sup>, <sup>1</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*

— Coffee Break —

## **Symposium 1 : Progress in Perovskite Solar Cells**

(15 : 10 ~ 16 : 40)

**Chairpersons :** A. Wakamiya, *Kyoto Univ., Japan*

W. -C. Yeh, *Shimane Univ., Japan*

- 15 : 10 (S1-1) Efficiency Limiting Factors in Perovskite Solar Cells (Invited)  
H. Ohkita, H. D. Kim, *Kyoto Univ., Japan*

- 15 : 40 (S1-2)      Organic-Inorganic Hybrid Perovskite Crystals  
and Their Application to Optoelectronic Devices  
(Invited)  
S. H. Im, *Korea Univ., Korea*
- 16 : 10 (S1-3)      Scalable Manufacturing of Solar Cells Enabled  
by Intense Pulsed Light (Invited)  
T. Druffel, K. Ankireddy, B. W. Lavery,  
*Univ. of Louisville, USA*

**Author Interviews (16 : 40 ~ 17 : 10)**

## Wednesday, July 5

### Session 1 : Keynote Address (10 : 00 ~ 11 : 30)

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

- 10 : 00 (1-1) Innovative Display Applications for Future Automobiles (Invited)  
B. Straub, *Daimler AG, Germany*
- 10 : 30 (1-2) Flexible Glass and its Application for Electronic Devices (Invited)  
S. M. Garner, S. C. Lewis, D. Q. Chowdhury,  
*Corning Incorporated, USA*
- 11 : 00 (1-3) Photophysics of Metal Halide Perovskites: Single Crystals, Nanocrystals, Thin Films, and Photonic Devices (Invited)  
Y. Kanemitsu, *Kyoto Univ., Japan*

— Lunch —

### Session 2 : Perovskite Solar Cells (13 : 00 ~ 14 : 05)

**Chairpersons :** T. Druffel, *Univ. of Louisville, USA*  
A. Masuda, *AIST, Japan*

- 13 : 00 (2-1) A Process to High Efficiency Stable Inverted Perovskite Solar Cell (Invited)  
C. -G. Wu, C. -H. Chiang, *Nat'l Central Univ., Taiwan*
- 13 : 25 (2-2) High Temperature Stable Perovskite Solar Cell Based on Carbon Counter Electrodes  
A. K. Baranwal<sup>1</sup>, H. Kanda<sup>1</sup>, S. Fukumoto<sup>1</sup>,  
H. Masutani<sup>1</sup>, T. Miyasaka<sup>2</sup>, S. Ito<sup>1</sup>, <sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*Toin Univ. of Yokohama, Japan*
- 13 : 45 (2-3) Bromine Doped Perovskite / Textured Silicon Heterojunction for Mechanically Stacked Tandem Solar Cell  
H. Kanda<sup>1</sup>, K. Ibi<sup>2</sup>, M. K. Nazeeruddin<sup>3</sup>, S. Ito<sup>1</sup>,  
<sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*Choshu Industry, Japan*, <sup>3</sup>*École Polytechnique Fédérale de Lausanne, Switzerland*

### Session 3 : Flat Panel Displays (14 : 05 ~ 15 : 25)

**Chairpersons :** M. Mitani, *Sharp, Japan*  
H. Nakamura, *Idemitsu Kosan, Japan*

- 14 : 05 (3-1) Fast-Settling, Energy-Efficient, Amplifier for High-Resolution LCD Displays  
A. Dadashi, Y. Berg, O. Mirmotahari, *Univ. of Oslo, Norway*
- 14 : 25 (3-2) Reading Accuracy Improvement of Flatpanel Imager by Liquid-Crystal Micro Lens  
S. Kitajima<sup>1</sup>, I. Ogawa<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Kimura<sup>1</sup>, K. Li<sup>2</sup>, D. Chu<sup>2</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Univ. of Cambridge, UK*
- 14 : 45 (3-3) Novel Design of Auto-Compensation for TFT  $V_{TH}$  and High-Speed Driving in Active-Matrix OLED Displays  
W. -C. Chiu<sup>1</sup>, P. -S. Chen<sup>1</sup>, C. -M. Lu<sup>1</sup>, M. -X. Wang<sup>1</sup>, C. -C. Hung<sup>2</sup>, C. -L. Lin<sup>1</sup>, <sup>1</sup>*Nat'l Cheng Kung Univ., Taiwan*, <sup>2</sup>*AU Optronics, Taiwan*
- 15 : 05 (3-4) Fine-Patterning of Full Color Quantum Dot Arrays via Selective Surface Tailoring.  
H. -L. Kang<sup>1</sup>, J. Kang<sup>2</sup>, S. -M. Jung<sup>2</sup>, J. Kim<sup>2</sup>, C. -H. Park<sup>1</sup>, B. -K. Ju<sup>1</sup>, M. -G. Kim<sup>2</sup>, S. K. Park<sup>2</sup>, <sup>1</sup>*Korea Univ., Korea*, <sup>2</sup>*Chung-Ang Univ., Korea*

— Coffee Break —

### Session 4 : Advanced Applications of TFT

(15 : 45 ~ 16 : 50)

**Chairpersons :** H. Tanabe, *NLT Technologies, Japan*  
M. Kimura, *Ryukoku Univ., Japan*

- 15 : 45 (4-1) Light-Bias Interaction of Zinc-Tin Oxide (ZTO) Thin Film Transistor for Charge-Trapping Memory Application (Invited)  
J. -S. Chen<sup>1</sup>, J. -T. Li<sup>1</sup>, L. -C. Liu<sup>1</sup>, P. -H. Ke<sup>1</sup>, J. -S. Jeng<sup>2</sup>, <sup>1</sup>*Nat'l Cheng Kung Univ., Taiwan*, <sup>2</sup>*Nat'l Univ. of Tainan, Taiwan*

- 16 : 10 (4-2) Effects of Electrode Materials on the Electrical and Bending Performance of Memory Thin Film Transistors Using P(VDF-TrFE) Gate Insulator and IGZO Active Channels  
J. -H. Yang, D. -J. Yun, G. -H. Seo, S. -M. Yoon,  
*Kyung Hee Univ., Korea*
- 16 : 30 (4-3) Performance of a Novel Trench Gate-All-around Junctionless Thin-Film Transistor with Hybrid P/N Channel  
Y. -R. Lin<sup>1</sup>, C. -H. Cheng<sup>1</sup>, Y. -R. Jhan<sup>1</sup>,  
Y. -H. Lin<sup>2</sup>, Y. -C. Wu<sup>1</sup>, <sup>1</sup>*Nat'l Tsing Hua Univ., Taiwan*, <sup>2</sup>*Nat'l United Univ., Taiwan*

**Late News (16 : 50 ~ 17 : 20)**

- 16 : 50 (L-1) The Performance of Amorphous In-Ga-Zn-O Thin-Film Transistors Passivated with Al<sub>2</sub>O<sub>3</sub> Using Dimethylaluminum Hydride as Precursor  
D. Corsino<sup>1</sup>, J. P. Bermundo<sup>1</sup>, K. Takahashi<sup>2</sup>,  
Y. Ishikawa<sup>1</sup>, Y. Uraoka<sup>1</sup>, <sup>1</sup>*Nara Inst. of Sci. and Technol., Japan*, <sup>2</sup>*Nippon Aluminum Alkyls, Japan*
- 17 : 05 (L-2) Deep Level Transient Spectroscopy Study on Defect States in In-Based Amorphous Oxide Semiconductor Thin Films with Heterojunction Diodes  
K. Hayashi<sup>1</sup>, M. Ochi<sup>1</sup>, A. Hino<sup>1</sup>, S. Kosaka<sup>2</sup>,  
H. Goto<sup>1</sup>, T. Kugimiya<sup>1</sup>, <sup>1</sup>*Kobe Steel, Japan*, <sup>2</sup>*KOBELCO Res. Inst., Japan*

**Author Interviews (17 : 20 ~ 17 : 50)**

**Banquet (18 : 00 ~ 20 : 00)**

Thursday, July 6

**Symposium 2 : Expansion of TFT Applications**

(9 : 15 ~ 10 : 45)

**Chairpersons :** H. J. Kim, *Yonsei Univ., Korea*  
M. Furuta, *Kochi Univ. of Technol., Japan*

9 : 15 (S2-1) Organic Power Converters: Design, Fabrication,  
and Applications (Invited)  
D. Tu, *Linköping Univ., Sweden*

9 : 45 (S2-2) Semiconductor-Based Biosensing Technology  
for Clinical Diagnosis (Invited)  
T. Sakata, *The Univ. of Tokyo, Japan*

10 : 15 (S2-3) Future of Large Size FPD and its Technologies  
(Invited)  
N. -S. Roh, *Samsung Electronics, Korea*

— *Coffee Break* —

**Symposium 3 : Low Dimensional Materials for Thin-Film  
Devices** (11 : 00 ~ 12 : 30)

**Chairpersons :** H. Naito, *Osaka Prefecture Univ., Japan*  
A. Heya, *Univ. of Hyogo, Japan*

11 : 00 (S3-1) Crystal Growth and Device Applications of  
Two-Dimensional Layered Materials (Invited)  
H. Ago, *Kyushu Univ., Japan*

11 : 30 (S3-2) Optical Properties and Application of  
Atomically Thin Two-Dimensional Materials  
(Invited)  
K. Matsuda, *Kyoto Univ., Japan*

12 : 00 (S3-3) Application of Graphene to Electronic Devices  
(Invited)  
S. Sato, *Fujitsu Labs., Japan*

— *Lunch* —

**Session 5 : Inorganic Solar Cells** (14 : 20 ~ 15 : 05)

**Chairpersons :** Y. Ishikawa, *NAIST, Japan*  
K. Nakamura, *Meiji Univ., Japan*

14 : 20 (5-2)      Current Status and Technology Trend of  
Crystalline Si Solar Cell (Invited)  
K. Nakamura, *Meiji Univ., Japan*

14 : 45 (5-3)      Hygrothermal and Thermal Cyclic Stresses on  
Thin-Film Si Photovoltaic Modules  
A. Masuda, N. Uchiyama, C. Yamamoto,  
*Nat'l Inst. of Advanced Industrial Sci. and  
Technol., Japan*

**Author Interviews** (15 : 05 ~ 15 : 35)



**Poster Session** (15 : 35 ~ 18 : 00)

**Chairpersons :** H. Okada, *Univ. of Toyama, Japan*  
R. Hattori, *Kyushu Univ., Japan*  
S. Horita, *JAIST, Japan*  
H. Naito, *Osaka Prefecture Univ., Japan*  
Y. Ishikawa, *NAIST, Japan*

**FPDp**

- (P-1) Efficient Blue, Green, and Red Transparent Organic Light-Emitting Diodes  
Y. -P. Wang<sup>1</sup>, S. -L. Tsai<sup>1</sup>, S. -W. Wu<sup>1</sup>,  
C. -H. Chang<sup>1</sup>, H. -H. Chang<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*, <sup>2</sup>*Vanung Univ., Taiwan*
- (P-2) Plasmonic Enhanced Electroluminescence from Light-Emitting Electrochemical Cells  
H. -C. Shih, B. -R. Chiou, H. -C. Su, *Nat'l Chiao Tung Univ., Taiwan*
- (P-3) A Novel Time-of-Flight Measurement Employing Ultra-Thin Chloroboron Subphthalocyanine/C<sub>60</sub> Charge Generation Layer  
J. -Y. Guo<sup>1</sup>, Y. -H. Li<sup>1</sup>, C. -C. Lee<sup>2</sup>, S. Biring<sup>1</sup>,  
S. -W. Liu<sup>1</sup>, <sup>1</sup>*Ming Chi Univ. of Technol., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*
- (P-4) Adjusting Color Temperature of Electroluminescence from White Light-Emitting Electrochemical Cells by Laser-Scanned Annealing of Nanoparticles  
H. -C. Lee<sup>1</sup>, C. -M. F. Chiang<sup>1</sup>, P. -Y. Wu<sup>1</sup>,  
Y. -C. Yao<sup>2</sup>, M. Sarma<sup>3</sup>, Z. -P. Yang<sup>1</sup>,  
H. -C. Su<sup>1</sup>, Y. -J. Lee<sup>2</sup>, K. -T. Wong<sup>3</sup>, <sup>1</sup>*Nat'l Chiao Tung Univ., Taiwan*, <sup>2</sup>*Nat'l Taiwan Normal Univ., Taiwan*, <sup>3</sup>*Nat'l Taiwan Univ., Taiwan*
- (P-5) Highly Efficient Blue Organic Light-Emitting Diodes Employing Exciplex Host  
C. -C. Lee<sup>1</sup>, Y. -H. Li<sup>2</sup>, G. Kumar<sup>2</sup>, S. Sen<sup>3</sup>,  
S. Biring<sup>2</sup>, S. -W. Liu<sup>2</sup>, <sup>1</sup>*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*, <sup>2</sup>*Ming Chi Univ. of Technol., Taiwan*, <sup>3</sup>*Indian Inst. of Technol., India*

- (P-6) Blue Aggregation-Induced Emission Molecules for Non-Doped Organic Light-Emitting Diodes  
D. Lo<sup>1</sup>, Y. -C. Hsu<sup>1</sup>, C. -H. Chang<sup>1</sup>, G. Krucaite<sup>2</sup>, D. Volyniuk<sup>2</sup>, S. Grigalevicius<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*, <sup>2</sup>*Kaunas Univ. of Technol., Lithuania*
- (P-7) Tandem Red PhOLEDs Based on Exciplex-Forming Co-Host  
W. -Y. Hung, K. -T. Lin, *Nat'l Taiwan Ocean Univ., Taiwan*
- (P-8) Characteristics of Quantum-Dot Light-Emitting Diodes Fabricated Using an RF-Sputtered Zinc Tin Oxide Electron-Transporting Layer  
H. -N. Lee, D. -J. Kim, *Soonchunhyang Univ., Korea*
- (P-9) Statistical Analysis and Equivalent Modelling for the Flat Panel Display  
C. -J. Ou, *Hsiuping Univ. of Sci. and Technol., Taiwan*
- (P-10) Fabrication of Transparent Full-Colored Quantum Dot-Light-Emitting Devices  
C. -Y. Han<sup>1</sup>, K. -H. Lee<sup>1</sup>, J. -H. Jo<sup>1</sup>, J. -H. Kim<sup>1</sup>, M. -S. Kim<sup>1</sup>, J. Kim<sup>2</sup>, Y. -H. Kim<sup>3</sup>, H. Yang<sup>1</sup>, <sup>1</sup>*Hongik Univ., Korea*, <sup>2</sup>*Kyonggi Univ., Korea*, <sup>3</sup>*Sungkyunkwan Univ., Korea*
- (P-11) All-Solution-Processed Fabrication of Electroluminescent Devices with Stacked Blue, Green and Red Quantum Dot Layers  
K. -H. Lee<sup>1</sup>, E. -P. Jang<sup>1</sup>, J. -W. Shin<sup>1</sup>, B. -Y. Kim<sup>1</sup>, S. -Y. Yoon<sup>1</sup>, M. S. Oh<sup>2</sup>, H. Yang<sup>1</sup>, <sup>1</sup>*Hongik Univ., Korea*, <sup>2</sup>*Korea Electronics Technol. Inst., Korea*
- (P-12) High Reliable Dual-Output Gate Driver for Medium and Large-Sized LCD Application  
G. -T. Zheng, P. -T. Liu, C. -H. Liao, *Nat'l Chiao-Tung Univ., Taiwan*
- (P-13) Gate Driver Circuit with Fast-Falling Structure for High-Resolution Applications  
C. -H. Tseng, F. -H. Chen, P. -C. Lai, C. -L. Lin, *Nat'l Cheng Kung Univ., Taiwan*

- (P-14) Lossless Pixel-Gradient Embedded Compression Algorithm for the Memory Bandwidth Saving of the Larger-Sized WRGB OLED Applications  
W. -Y. Chiou, Y. -H. Lee, *Yuan-Ze Univ., Taiwan*
- (P-15) Pixel Circuit with External Current Source to Achieve Fast Compensation for Variations of LTPS TFTs for AMOLED Displays  
C. -C. Hsu, C. -M. Lu, P. -C. Lai, P. -S. Chen, C. -L. Lin, *Nat'l Cheng Kung Univ., Taiwan*
- (P-16) New Gate Driver Circuit Using Pre-Charge Structure for Active-Matrix LCDs Equipped with In-Cell Touch Structure  
C. -L. Lee, C. -E. Wu, C. -E. Lee, C. -L. Lin, *Nat'l Cheng Kung Univ., Taiwan*
- (P-L1) The Kerr Effect of a Distortable Crystal Lattice in a Blue Phase Liquid Crystal Cell  
J. -J. Wu, J. -R. Hu, J. -H. Lin, T. -J. Chen, K. -L. Lee, Y. -C. Huang, G. -J. Lin, S. -H. Chang, *Nat'l Taipei Univ. of Technol., Taiwan*

#### **TFTp**

- (P-17) Improvement of Mobility Characteristics in Polycrystalline Silicon Thin Film Transistors with Oxygen Controlled Dehydrogenation  
W. -S. Ryu, S. -Y. Sung, W. J. Chang, J. Kang, K. S. Cho, S. M. Seo, W. S. Son, J. I. Lee, K. -S. Park, K. T. Lee, S. R. Lee, W. H. Cho, *LG Display, Korea*
- (P-18) Withdrawn
- (P-19) Fluorine Doped Zinc Oxynitride Thin Film Transistors Fabricated by RF Reactive Co-Sputtering  
H. -D. Kim, J. -H. Kim, D. -G. Yang, H. -S. Kim, *Chungnam Nat'l Univ., Korea*
- (P-20) Flexible Amorphous Indium-Tin-Zinc Oxide (a-ITZO) Thin-Film Transistors on Polyimide Substrate  
D. -G. Yang, J. -H. Kim, H. -D. Kim, H. -S. Kim, *Chungnam Nat'l Univ., Korea*

- (P-21) Impact of Atomic-Layer-Deposition Temperature for the HfO<sub>2</sub> Gate Insulators on the Device Performance of the In-Ga-Zn-O Thin Film Transistors  
S. -Y. Na, Y. -M. Kim, D. -J. Yoon, S. -M. Yoon, *Kyung Hee Univ., Korea*
- (P-22) Using Ti-Doped GaZnO/ InGaZnO/ Ti-Doped GaZnO Sandwich Composite Structure to Enhance the Device Performances of Transparent Thin-Film Transistors  
W. -S. Liu, C. -W. Wang, Y. -H. Lin, C. -L. Huang, Y. -M. Chu, C. -C. Wen, E. -T. Huang, H. -Y. Chen, S. -T. Chen, M. -E. Hsu, Y. -Jiang, *Yuan Ze Univ., Taiwan*
- (P-23) Withdrawn
- (P-24) Pentacene-Based Ambipolar Organic Transistors with Improved N-Channel Characteristics Using Polyethylenimine as a Buffer Layer  
P. T. Tseng, B. Y. Huang, B. R. Lin, W. Y. Chou, H. L. Cheng, *Nat'l Cheng Kung Univ., Taiwan*
- (P-25) Improved Electrical Performance of Organic Thin-Film Transistors with Modified High-K Dielectrics  
F. -C. Wu<sup>1</sup>, B. -L. Yeh<sup>1</sup>, T. -H. Chou<sup>1</sup>, J. -S. Chen<sup>1</sup>, M. -R. Tsai<sup>2</sup>, H. -L. Cheng<sup>1</sup>, W. -Y. Chou<sup>1</sup>, <sup>1</sup>*Nat'l Cheng Kung Univ., Taiwan*, <sup>2</sup>*Daxin Materials, Taiwan*
- (P-26) Stimulus Performance of Thin-Film Biological Stimulation Device  
K. Tomioka, K. Miyake, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-27) Letter Recognition by Neural Network Using Poly-Si Thin Film Transistors  
S. Sugisaki<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Kimura<sup>1,2</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Nara Inst. of Sci. and Technol., Japan*

- (P-28) Ga-Sn-O Thin Films as Synapse Devices for Neural Networks  
K. Ikushima<sup>1</sup>, K. Umeda<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Kimura<sup>1,2</sup>, T. Kameda<sup>2</sup>, Y. Nakashima<sup>2</sup>,  
<sup>1</sup>Ryukoku Univ., Japan, <sup>2</sup>Nara Inst. of Sci. and Technol., Japan
- (P-L2) High Reliability a-InGaZnO TFT by Inductively Coupled Plasma Sputtering System  
D. Matsuo<sup>1</sup>, S. Kishida<sup>1</sup>, Y. Setoguchi<sup>1</sup>, Y. Ando<sup>1</sup>, R. Miyanaga<sup>2</sup>, M. N. Fujii<sup>2</sup>, Y. Uraoka<sup>2</sup>, <sup>1</sup>Nissin Electric, Japan, <sup>2</sup>Nara Inst. of Sci. and Technol., Japan
- (P-L3) Germanium Nanowire-Induced Mobility Enhancement in Polythiophene Field Effect Transistors  
G. -W. Hsieh, C. -Y. Chan, C. -W. Tsai, *Nat'l Chiao Tung Univ., Taiwan*
- (P-L4) Four-Terminal Polycrystalline-Germanium Thin-Film Transistors Fabricated at 300°C by Metal Induced Crystallization Using Copper on a Glass Substrate  
H. Utsumi, H. Ohsawa, A. Hara, *Tohoku Gakuin Univ., Japan*
- (P-L5) Low Temperature (150°C) Wet Oxygen Annealing of Amorphous InGaZnO Thin-Film Transistors for Flexible Device Applications  
M. P. Jallorina, J. P. Bermundo, Y. Ishikawa, Y. Uraoka, *Nara Inst. of Sci. and Technol., Japan*
- (P-L6) Positive Bias Stress Instability of In-Ga-Zn-O Thin-Film Transistors with Al<sub>2</sub>O<sub>3</sub>/TEOS Oxide Gate Dielectrics  
Y. -S. Lee<sup>1</sup>, Y. -H. Wang<sup>1</sup>, T. -C. Tien<sup>2</sup>, T. -E. Hsieh<sup>2</sup>, <sup>1</sup>Minghsin Univ. of Sci. and Technol., Taiwan, <sup>2</sup>Nat'l Chiao Tung Univ., Taiwan
- (P-L7) Oxide TFT with Diluted SOG (Spin on Glass) Insulators  
S. H. Hwang<sup>1</sup>, M. T. Hong<sup>1</sup>, H. S. Huh<sup>2</sup>, M. S. Kim<sup>2</sup>, E. -J. Yun<sup>1</sup>, B. S. Bae<sup>1</sup>, <sup>1</sup>Hoseo Univ., Korea, <sup>2</sup>Nepes inst. of Sci. & Technol., Korea

- (P-L8) Four-Terminal Polycrystalline-Silicon Thin-Film Transistors Fabricated by Nickel Metal-Induced Crystallization and Hafnium Oxide Dielectric on a Glass Substrate  
S. Nibe, A. Hara, *Tohoku Gakuin Univ., Japan*

## PVp

- (P-47) Using the Ti-Doped GaZnO Transparent Conductive Oxide Films for the Development of CIGS Photovoltaics  
W. -S. Liu, W. -T. Hsieh, S. -Y. Chen, Y. Jiang, S. -T. Chen, C. -C. Wen, H. -Y. Chen, E. -T. Huang, M. -E. Hsu, *Yuan Ze Univ., Taiwan*
- (P-29) Withdrawn
- (P-30) Light Path and Surface Morphology Optimization for Optical · Carrier Loss Minimization at Thin-Wafer Based Solar Cell Fabrication Applications  
C. Park<sup>1</sup>, N. Balaji<sup>1</sup>, M. Ju<sup>1</sup>, S. Ahn<sup>1</sup>, G. Shim<sup>1</sup>, S. Han<sup>1</sup>, S. Park<sup>1</sup>, H. Ahn<sup>2</sup>, W. -W. So<sup>3</sup>, J. Yi<sup>1</sup>, <sup>1</sup>*Sungkyunkwan Univ., Korea*, <sup>2</sup>*Konkuk Univ., Korea*, <sup>3</sup>*Korea Res. Inst. of Chemical Technol., Korea*
- (P-31) Investigation of Photovoltaic Performance of Perovskite Solar Cells with  $\alpha$ -NPD and Electron-Beam Evaporated TiO<sub>2</sub> Photoelectrode  
M. F. Hossain<sup>1,2</sup>, H. Okada<sup>1</sup>, S. Naka<sup>1</sup>, <sup>1</sup>*Univ., of Toyama, Japan*, <sup>2</sup>*Rajshahi Univ. of Engineering Technol., Bangladesh*
- (P-32) Fabrication of Lead-Free Organo-Metal-Halide Solar Cells with Normal Structure and Inverse Structure Using Antimony and Bismuth  
H. Masutani, H. Kanda, S. Fukumoto, A. K. Baranwal, S. Ito, *Univ. of Hyogo, Japan*
- (P-33) Amino Acid-Induced Morphogenesis of ZnO Nanocrystallite Aggregates for Efficiency Enhancement in Dye-Sensitized Solar Cells  
Y. -C. Chen, S. -Y. Sie, H. -S. Chen, W. -C. Yu, *Nat'l Taipei Univ. of Technol., Taiwan*

- (P-34) Silver Nanowire Flexible ITO-Free Polymer Solar Cells  
M. -Y. Lin<sup>1</sup>, S. -L. Chen<sup>1</sup>, C. -W. Chu<sup>2</sup>, <sup>1</sup>*Chung Yuan Christian Univ., Taiwan*, <sup>2</sup>*Academia Sinica, Taiwan*
- (P-35) Low Band Gap Thienoisindigo-Based Molecules for Near-Infrared Organic Photovoltaics  
C. -H. Chen, P. -T. Chou, Y. -T. Hsu, *Tamkang Univ., Taiwan*
- (P-L9) Fabrication of Efficient Perovskite Solar Cells by a Solution Process Using a Complex of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>(dmf) as a Key Precursor  
M. Ozaki, A. Rafieh, N. Maruyama, A. Shimazaki, M. Jung, Y. Nakaike, T. Aharen, T. Sasamori, N. Tokitoh, Y. Murata, A. Wakamiya, *Kyoto Univ., Japan*
- (P-L10) Withdrawn
- (P-L11) Influence of D- $\pi$ -A System Through Linked Unit of Double and Triple Bonds in Triarylene Bridge for Dye-Sensitised Solar Cells  
Y. J. Chang, R. -Y. Huang, Y. -H. Chiu, T. -H. Chiang, *Tunghai Univ., Taiwan*
- (P-L12) Withdrawn
- (P-L13) Withdrawn
- (P-L14) CIGS Solar Cell Devices on Steel Substrates Coated with Al-P-O Inorganic Materials for Flexible Applications  
M. Kim<sup>1</sup>, K. -B. Kim<sup>2</sup>, S -N. Lee<sup>3</sup>, H. -J. Lee<sup>4</sup>, Y. Min<sup>1</sup>, J. Lee<sup>1</sup>, H. -C. Lee<sup>1</sup>, <sup>1</sup>*Jungwon Univ., Korea*, <sup>2</sup>*Inha Technical College, Korea*, <sup>3</sup>*Korea Polytechnic Univ., Korea*, <sup>4</sup>*The Inst. for Industrial Policy Studies, Korea*

## TFMDp

- (P-36) Low-Temperature Formation of N-Type Ge/Insulator by Sb-Induced Layer Exchange Crystallization  
H. Gao, R. Aoki, M. Sasaki, M. Miyao, T. Sadoh, *Kyushu Univ., Japan*
- (P-37) Thickness-Dependent Substitutional-Sn-Concentration in GeSn-on-Insulator by Weak-Laser-Irradiation-Enhanced Solid-Phase Crystallization at Low-Temperature (180°C)  
T. Sugino, K. Moto, H. Ikenoue, M. Miyao, T. Sadoh, *Kyushu Univ., Japan*
- (P-38) Effects of Deposition Temperature and Thermal Annealing on the Structural Properties of Titanium Dioxide Thin Films Prepared by Mist Chemical Vapor Deposition  
Q. Zhang, C. Li, *Kochi Univ. of Technol., Japan*
- (P-39) Withdrawn
- (P-40) Post Annealing Temperature Effect on Properties of Ga and F Codoped ZnO Thin Films Prepared by RF Magnetron Sputtering  
F. -H. Wang, H. -S. Jhuang, H. -W. Liu, *Nat'l Chung Hsing Univ., Taiwan*
- (P-41) Preparation and Characterization of Sol-Gel Derived BaTi<sub>5</sub>O<sub>11</sub> Dielectric Thin Films  
C. -H. Hsu<sup>1</sup>, C. -F. Tseng<sup>1</sup>, C. -C. Yu<sup>2</sup>, J. -C. Liu<sup>1</sup>, C. -H. Chen<sup>2</sup>, C. -Y. Chan<sup>1</sup>, <sup>1</sup>*Nat'l United Univ., Taiwan*, <sup>2</sup>*Feng-Chia Univ., Taiwan*
- (P-42) The Effect of Air Annealing on the Properties of MoO<sub>3</sub> Films and Its Application for Organic Light Emitting Diodes  
P. -C. Kao, Z. -H. Chen, H. -E. Yen, T. -H. Liu, C. -L. Huang, *Nat'l Chiayi Univ., Taiwan*
- (P-43) Mechanochromic Luminescent Behavior of Amide-Terminated Rod-Like Liquid Crystal  
M. Kondo, K. Arita, T. Yamoto, N. Kawatsuki, *Univ. of Hyogo, Japan*



- (P-44) Withdrawn
- (P-45) Withdrawn
- (P-46) Withdrawn
- (P-L15) Ultrafine Intrinsic FET with Nanodot Type Floating Gate  
T. Ban<sup>1</sup>, S. Migita<sup>2</sup>, N. Olamoto<sup>3</sup>, M. Uenuma<sup>3</sup>, Y. Uraoka<sup>3</sup>, S. -I. Yamamoto<sup>1</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Nat'l Inst. of Advanced Industrial Sci. and Technol., Japan*, <sup>3</sup>*Nara Inst. of Sci. and Technol., Japan*
- (P-L16) Activation Behavior of Polycrystalline Silicon Films by Phosphorus Ion Implantation at 200°C  
T. Sugawara<sup>1</sup>, N. Tanaka<sup>1</sup>, S. Kimura<sup>1</sup>, M. Hasumi<sup>1</sup>, T. Nagao<sup>2</sup>, Y. Inouchi<sup>2</sup>, T. Sameshima<sup>1</sup>, <sup>1</sup>*Tokyo Univ. of Agriculture and Technol., Japan*, <sup>2</sup>*Nissin Ion Equipment, Japan*
- (P-L17) Withdrawn
- (P-L18) Effect of SiO<sub>x</sub> Capping Film on Crystallization of Ge Film by Flash Lamp Annealing  
N. Yoshioka<sup>1</sup>, A. Heya<sup>1</sup>, N. Matsuo<sup>1</sup>, K. Kohama<sup>2</sup>, K. Ito<sup>2</sup>, <sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*Osaka Univ., Japan*
- (P-L19) The Effects of SF<sub>6</sub> Treatment on the Properties of the InGaZnO Thin Films  
J. Choi, B. S. Bae, E. -J. Yun, *Hoseo Univ., Korea*

Friday, July 7

**Session6 : Novel Fabrication Processing for Thin-Film  
Materials (9 : 15 ~ 10 : 40)**

**Chairpersons :** H. Ago, *Kyushu Univ., Japan*  
K. Matsuda, *Kyoto Univ., Japan*

- 9 : 15 (6-1) Inhomogeneous Crystallization of Sputter-Deposited Amorphous Ge Films (Invited)  
R. Nakamura<sup>1</sup>, M. Okugawa<sup>1</sup>, M. Ishimaru<sup>2</sup>,  
H. Yasuda<sup>3</sup>, H. Numakura<sup>1</sup>, <sup>1</sup>*Osaka Prefecture Univ., Japan*, <sup>2</sup>*Kyushu Inst. of Technol., Japan*,  
<sup>3</sup>*Osaka Univ., Japan*
- 9 : 40 (6-2) Formation of Graphene-Related Organic Film by Hot Mesh Deposition Using W Mesh Supported Ni  
A. Heya<sup>1</sup>, R. Yamasaki<sup>2</sup>, N. Matsuo<sup>1</sup>, <sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*Tocolo, Japan*
- 10 : 00 (6-3) Bimetal-Catalyzed VLS Growth of InGaZnO Nanowire from Amorphous Thin Film  
J. C. Felizco, M. Uenuma, D. Senaha,  
Y. Ishikawa, Y. Uraoka, *Nara Inst. of Sci. and Technol., Japan*
- 10 : 20 (6-4) Effect of Trichloroethene (TCE) on Deposition Rate and Film Quality of Low-Temperature SiO<sub>2</sub> Films Grown Using Silicone Oil and Ozone Gas  
P. Jain, S. Horita, *Japan Advanced Inst. of Sci. and Technol., Japan*

— Coffee Break —

**Session 7 : Novel Thin-Film Devices (11 : 00 ~ 12 : 00)**

**Chairpersons :** S. Sato, *Fujitsu Labs., Japan*  
M. Kimura, *Ryukoku Univ., Japan*

- 11 : 00 (7-1) Improved Characteristics of Polymer Photodetectors Using Phosphonic Acid-Based Self-Assembled Monolayer Treatment for Interfacial-Engineering of Ga-Doped ZnO Electrodes  
H. Kajii, Y. Mohri, H. Okui, M. Kondow,  
Y. Ohmori, *Osaka Univ., Japan*

- 11 : 20 (7-2) Ultralow Temperature Solution Processed Gate Dielectrics Using Molecular Structured Precursors and Highly Energetic Photochemical Process  
J. -W. Jo<sup>1</sup>, M. -G. Kim<sup>1</sup>, J. Park<sup>1</sup>, J. S. Heo<sup>1</sup>, J. -G. Kang<sup>1</sup>, S. -G. Ban<sup>1</sup>, Y. -H. Kim<sup>2</sup>, S. Hwang<sup>3</sup>, J. Kim<sup>4</sup>, S. K. Park<sup>1</sup>, <sup>1</sup>*Chung-Ang Univ., Korea*, <sup>2</sup>*Sungkyunkwan Univ., Korea*, <sup>3</sup>*Korea Univ., Korea*, <sup>4</sup>*Hanyang Univ., Korea*
- 11 : 40 (7-3) A Transimpedance Amplifier Based on a LTPS Process Operated in Alkali Vapor  
J. Schmidt, P. Schalberger, H. Baur, R. Löw, T. Pfau, H. Kübler, N. Frühauf, *Univ. of Stuttgart, Germany*

— Lunch —

**Session 8 : Advanced Materials for TFT (14: 00 ~ 15 : 05)**

**Chairpersons :** D. Tu, *Linköping Univ., Sweden*  
Y. Terai, *JOLED, Japan*

- 14 : 00 (8-1) Material Design of Ultra-Wide Bandgap AOSs and their Applications in Photostable Electronic Devices (Invited)  
J. Kim<sup>1,3</sup>, N. Nakamura<sup>2,3</sup>, T. Kamiya<sup>1</sup>, H. Hosono<sup>1,3</sup>, <sup>1</sup>*Tokyo Inst. of Technol., Japan*, <sup>2</sup>*Asahi Glass, Japan*, <sup>3</sup>*Japan Sci. and Technol. Agency, Japan*
- 14 : 25 (8-2) Development of Inkjet Printed N-Type Organic Field-Effect Transistor with Morphology Control of Insulating Layer  
S. J. Moon<sup>1,2</sup>, M. Robin<sup>1</sup>, K. Wenlin<sup>1</sup>, T. M. -Brahim<sup>1</sup>, E. Jacques<sup>1</sup>, M. Harnois<sup>1</sup>, B. S. Bae<sup>2</sup>, <sup>1</sup>*Univ. Rennes I, France*, <sup>2</sup>*Hoseo Univ., Korea*
- 14 : 45 (8-3) Instant Glue Passivation Layer of Indium-Gallium-Zinc Oxide Thin Film Transistors  
H. Yoo, Y. J. Tak, B. H. Kang, H. J. Kim, *Yonsei Univ., Korea*

— Coffee Break —

**Session 9 : Novel TFT Technologies for High Performance Device** (15 : 20 ~ 16 : 25)

**Chairpersons :** N. -S. Roh, *Samsung Electronics, Korea*  
S. Horita, *JAIST, Japan*

15 : 20 (9-1) High Mobility Oxide TFT for OLED Pixel Circuits (Invited)  
J. U. Bae, J. H. Baeck, P. Yun, D. H. Kim,  
Y. H. Jang, K. -S. Park, S. Y. Yoon, I. B. Kang,  
*LG Display, Korea*

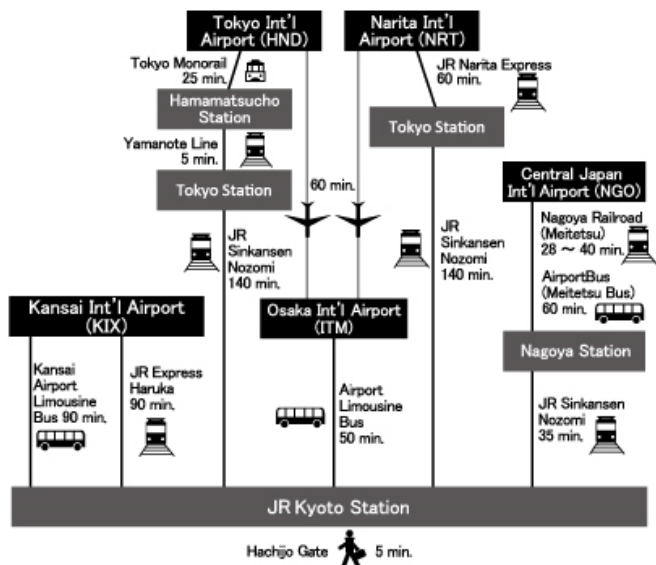
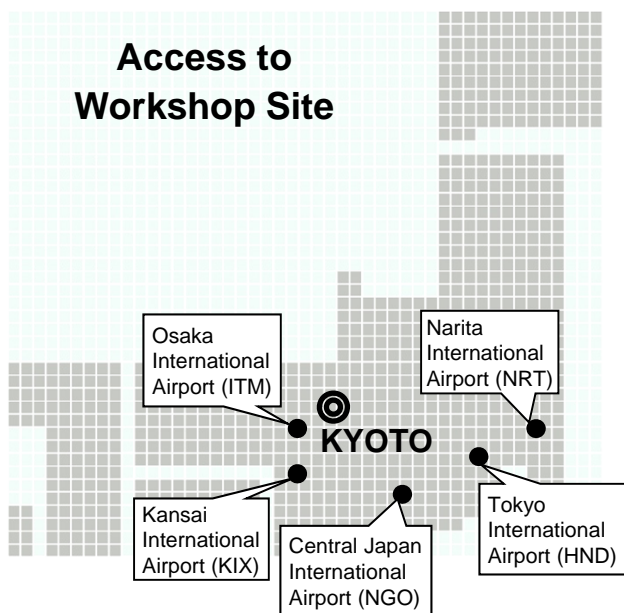
15 : 45 (9-2) Transparent Oxide Thin-Film Transistors with Vertical Channel Structure Using Atomic-Layer-Deposited In-Ga-Zn-O Thin Films  
Y. -M. Kim<sup>1</sup>, G. -H. Kim<sup>2</sup>, S. -M. Yoon<sup>1</sup>,  
<sup>1</sup>*Kyung Hee Univ., Korea*, <sup>2</sup>*Electronics & Telecommunication Res. Inst., Korea*

16 : 05 (9-3) Performance of Four-Terminal Low-Temperature Polycrystalline-Silicon Thin-Film Transistors and their Application to CMOS Inverter on a Glass Substrate  
H. Ohsawa, H. Utsumi, A. Hara, *Tohoku Gakuin Univ., Japan*

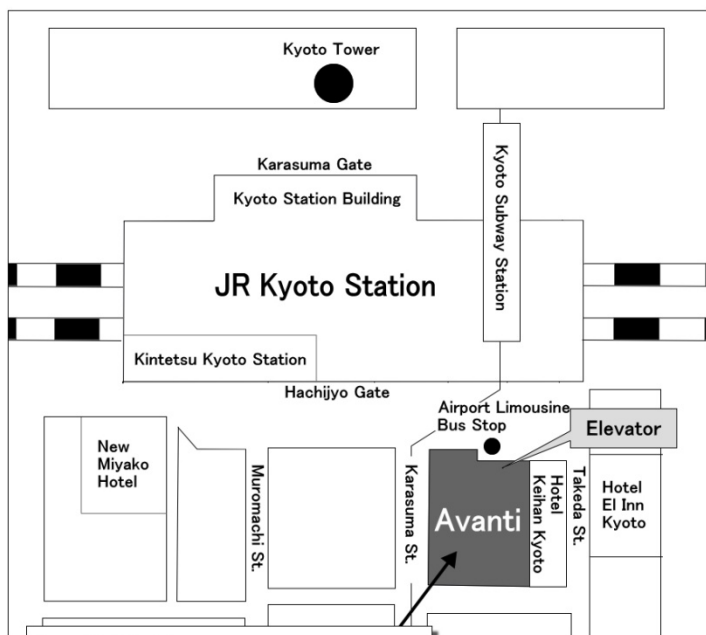
**Closing Remarks** (16 : 25 ~ 16 : 30)

**Author Interviews** (16 : 30 ~ 17 : 00)

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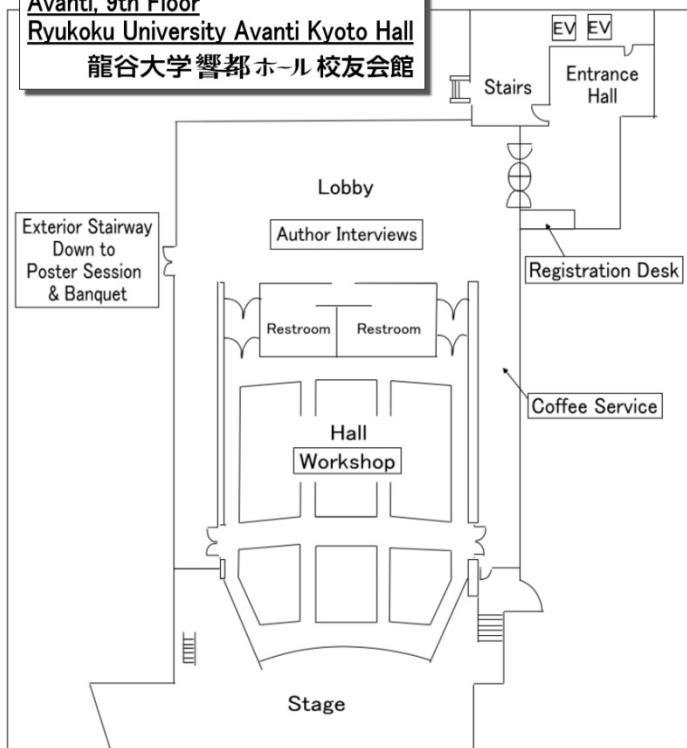
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**THE TWENTY-FOURTH INTERNATIONAL WORKSHOP ON  
ACTIVE-MATRIX FLATPANEL DISPLAYS AND DEVICES  
— TFT TECHNOLOGIES AND FPD MATERIALS —  
(AM-FPD '17)**

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