

# PROGRAM

---

# AM-FPD 16

---

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

-TFT TECHNOLOGIES AND FPD MATERIALS-

JULY 6-8, 2016

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 23rd International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD '16) will be held at Ryukoku University Avanti Kyoto Hall, Kyoto, Japan from July 6 (Wednesday) to 8 (Friday), 2016. 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 26, 27)

AM-FPD '16 Secretariat Tel: +81-475-23-1150

## **WORKSHOP THEME**

AM-FPD '16 will prepare an attractive program focusing on  
“What's Going on and What's the Next ? ”.

## **SYMPOSIUM**

In addition to the regular sessions, symposia, “*Development and Future Innovation of TFT Technology*”, “*Next-Generation Thin-Film Solar Cells*” and “*Thin-Film Materials for Sensing 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 7		
Late News	15 min.	12 min.	3 min.

## **THE PROCEEDINGS OF AM-FPD '16**

The Proceedings of AM-FPD '16 will be distributed from July 6 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 6	9:30-17:00
Thursday, July 7	9:15-17:00
Friday, July 8	9:15-14:00

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, 2016(JST)	On-Site Registration
<b>WORKSHOP*2</b>		
Member*3	¥50,000	¥55,000
Non-Member	¥52,000	¥57,000
Student*4	¥15,000	¥17,000
<b>TUTORIAL</b>		
Regular	¥5,000	¥5,000
Conference attendee & Student	¥3,000	¥3,000

\*2The registration fee of the workshop includes the admission to all sessions and USB memory of the proceedings. The banquet of AM-FPD '16 will be served without additional charge.

\*3The member of the societies which sponsor and support AM-FPD '16. (see the front cover)

\*4Students are required to show their ID card.

## **BANQUET**

The banquet will be held on July 6, 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\_fpd16@nta.co.jp) or by FAX (+81-43-225-2241) to avoid any trouble.

### **Cancel Charge**

From June 9 to 27-----JPY 3,000

After June 28---100% of the registration fee / NO REFUND

The Proceedings of the AM-FPD '16(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\_fpd16@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. 56, No. 3, 2017). The manuscript should contain some novel, original and significant parts in addition to your presentation in AM-FPD '16.

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 25, 2016.

Submission & Information:

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

The review schedule is as follows:

- July 25, 2016: Submission
- Mid-December, 2016: Final decision
- March, 2017: 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'16 from the accepted ones.

### **IEEE XPLORE DIGITAL LIBRARY**

The Proceedings of AM-FPD '16 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 6** (10 : 00 ~ 12 : 00)

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

10:00 (T-1) Advances in Oxide Semiconductors and Their Devices  
Hideya Kumomi, *Tokyo Inst. of Technol., Japan*

11:00 (T-2) Metal Halide Perovskite Semiconductors for Solar Cells  
Takashi Kondo, *The Univ. of Tokyo, 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 '15 PAPER AWARD

## **Best Paper Award**

- (2-3) Nonvolatile Memory Performances of Transparent and/or Flexible Memory Thin-Film Transistors Using IGZO Channel and ZnO Charge-Trap Layers  
So-Jung Kim, Won-Ho Lee, Sung-Min Yoon, *Kyung Hee Univ., Korea*

## **Poster Award**

- (P-11) Bending Performance and Bias-Stress Stability of the In-Ga-Zn-O TFTs Prepared on Flexible PEN Substrates with Optimum Barrier Structures  
Min-Ji Park<sup>1</sup>, Da-Jung Yun<sup>1</sup>, Min-Ki Ryu<sup>2</sup>, Jong-Heon Yang<sup>2</sup>, Jae-Eun Pi<sup>2</sup>, Gi-Hyun Kim<sup>2</sup>, Chi-Sun Hwang<sup>2</sup>, Sung-Min Yoon<sup>1</sup>, <sup>1</sup>*Kyung Hee Univ., Korea*, <sup>2</sup>*Electronics & Telecommunication Res. Inst., Korea*
- (P-18) Molecular Alignment Control of Pentacene Molecules Deposited on a Photocrosslinkable Liquid-Crystalline Polymer Film with Various Thicknesses  
Mizuho Kondo, Takao Nakanishi, Akira Heya, Naoto Matsuo, Nobuhiro Kawatsuki, *Univ. of Hyogo, Japan*

## **Student Paper Award**

- Kahori Kise, *Nara Inst. of Sci. and Technol., Japan*  
(7-3) Analysis of Self-Heating Phenomenon in Oxide Thin-Film Transistors under Pulsed Bias Voltage

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

- Masahiro Horita, *Nara Inst. of Sci. and Technol., Japan*  
(6-3) Unseeded Growth of Poly-Crystalline Ge with (111) Surface Orientation on Insulator by Pulsed Green Laser Annealing

## **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.*)  
Takuya Matsuo (*Sharp*)  
Kenichirou Nishida (*Panasonic Liquid Crystal Display*)  
Akira Okada (*GOIC*)  
Nobuo Sasaki (*Sasaki Consulting*)  
Kenji Sera (*NLT Technologies*)  
**Advisor :** Makoto Ohkura

## **STEERING COMMITTEE**

- Chair:** Yukiharu Uraoka (*NAIST*)  
**Vice-Chair:** Hiroshi Tanabe (*NLT Technologies*)  
**Members:** Toshiaki Arai (*JOLED*)  
Mutsuko Hatano (*Tokyo Inst. of Technol.*)  
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*)  
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*)  
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.*)  
Hyun Jae Kim (*Yonsei Univ.*)  
Masatoshi Kitamura (*Kobe Univ.*)  
Dietmar Knipp (*Jacobs Univ. Bremen*)  
Chih-Lung Lin (*Nat'l Cheng Kung Univ.*)  
Atsushi Masuda (*AIST*)  
Tokiyoshi Matsuda (*Ryukoku Univ.*)  
Masahiro Mitani (*Sharp*)  
Kentaro Miura (*Toshiba*)  
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.*)  
Ruud E. I. Schropp (*Eindhoven Univ. of Technol.*)  
Kazushige Takechi (*NLT Technologies*)  
Taishi Takenobu (*Waseda Univ.*)  
Yasuhiro Terai (*JOLED*)  
Yung-Hui Yeh (*ITRI*)  
Wen-Chang Yeh (*Shimane Univ.*)

# PROGRAM

Wednesday, July 6

**Opening Session** (13 : 00 ~ 13 : 15)

**Chairperson :** H. Tanabe, *NLT Technologies, Japan*

## **Welcome Address**

H. Hamada, *Kinki Univ., Japan*

## **Award Presentation**

**Session 1 : Keynote Address** (13 : 15 ~ 14 : 15)

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

H. Tanabe, *NLT Technologies, Japan*

13 : 15 (1-1) AM-FPDs will Make Further Progress with 8K System and Olympic Games (Invited)  
T. Kurita, *NHK Media Technol., Japan*

13 : 45 (1-2) Recent Progress on Perovskite Solar Cells and Our Materials Science (Invited)  
A. Wakamiya, *Kyoto Univ., Japan*

## **Session 2 : Novel Application of TFTs**

(14 : 15 ~ 15 : 20)

**Chairpersons :** S. -H. Jin, *Incheon Nat'l Univ., Korea*

A. Heya, *Univ. of Hyogo, Japan*

14 : 15 (2-1) Nanomaterial-Based Flexible and Wearable Sensor Sheets (Invited)  
K. Takei, *Osaka Prefecture Univ., Japan*

14 : 40 (2-2) Evaluation of pH Sensors Using Self-Aligned Four-Terminal Planar Embedded Metal Double-Gate Low-Temperature Polycrystalline-Silicon Thin-Film Transistors on Glass Substrate  
H. Ohsawa, H. Suzuki, S. Kuwano, A. Hara,  
*Tohoku Gakuin Univ., Japan*

15 : 00 (2-3) Brain-Like Synaptic Operations of Thin-Film Transistors Using In-Ga-Zn-O Active Channel and PVP-SBA Electrolytic Gate Insulator  
Y. -M. Kim<sup>1</sup>, E. -J. Kim<sup>1</sup>, W. -H. Lee<sup>1</sup>,  
J. -Y. Oh<sup>2</sup>, S. -M. Yoon<sup>1</sup>, <sup>1</sup>*Kyung Hee Univ., Korea*, <sup>2</sup>*Electronics & Telecommunication Res. Inst., Korea*

— Coffee Break —

### Session 3 : Novel Application on Photovoltaics

(15 : 35 ~ 16 : 45)

**Chairpersons :** A. Masuda, *AIST, Japan*  
T. Itoh, *Gifu Univ., Japan*

15 : 35 (3-1) Solar Radiation Forecast with Machine Learning  
(Invited)  
X. Shao, S. Lu, H. F. Hamann, *IBM, USA*

16 : 00 (3-2) Local Photovoltaic Characterization of Si Thin  
Film Solar Cells (Invited)  
T. Itoh, *Gifu Univ., Japan*

16 : 25 (3-3) Lateral Thin-Film Poly-Si Solar Cell Prepared  
By Low Temperature Ni Silicide-Induced  
Crystallization  
Z. Kiaee, S. K. Joo, *Seoul Nat'l Univ., Korea*

#### Late News (16:45 ~ 17:15)

16 : 45 (L-1) Charge Effects of Ultrafine FET with Nanodot  
Type Floating Gate  
T. Ban<sup>1</sup>, S. Migita<sup>2</sup>, Y. Uraoka<sup>3</sup>, S. 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*

17 : 00 (L-2) Novel Bi-Direction Gate Driver Circuit for  
Active-Matrix LCDs with In-Cell Touch  
Structures  
P. -S. Chen, Y. -T. Liu, C. -L. Lin, *Nat'l Cheng  
Kung Univ., Taiwan*

#### Author Interviews (17 : 15 ~ 17 : 45)

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

Thursday, July 7

**Symposium 1 : Development and Future Innovation of TFT Technology (9 : 15 ~ 10 : 45)**

**Chairpersons :** S. -M. Yoon, *Kyung Hee Univ., Korea*  
M. Furuta, *Kochi Univ. of Technol., Japan*

9 : 15 (S1-1) Development of Organic Semiconducting Technology to Realize Low Driving Voltages (Invited)

M. He<sup>2</sup>, C. Wang<sup>1</sup>, W. -Y. Lee<sup>1</sup>, D. Kong<sup>1</sup>,  
R. Pfattner<sup>1</sup>, W. Niu<sup>2</sup>, J. R Matthews<sup>2</sup>,  
A. Wallace<sup>2</sup>, Z. Bao<sup>1</sup>, <sup>1</sup>*Stanford Univ., USA*  
<sup>2</sup>*Corning Incorporated, USA*

9 : 45 (S1-2) Large-Area Solution-Printed Metal Oxide Electronics (Invited)  
W. -J. Lee, S. Park, M. -H. Yoon, *Gwangju Inst. of Sci. and Technol., Korea*

10 : 15 (S1-3) Single-Walled Carbon Nanotubes (SWNTs); History and Future Prospects for Electronic Applications (Invited)  
S. H. Jin, *Incheon Nat'l Univ., Korea*

— Coffee Break —

**Symposium 2 : Thin-Film Materials for Sensing Devices (11 : 00 ~ 12 : 20)**

**Chairpersons :** H. Naito, *Osaka Prefecture Univ., Japan*  
H. Kajii, *Osaka Univ., Japan*

11 : 00 (S2-1) A Tube-in-a-Tube Semiconductor (Invited)  
A. L. Ng, Y. Wang, *Univ. of Maryland, USA*

11 : 30 (S2-2) Graphene Field-Effect Transistor for Biosensor (Invited)  
K. Matsumoto, R. Hayashi, Y. Kanai, K. Inoue,  
T. Ono, *Osaka Univ., Japan*

12 : 00 (S2-3) Reduction of Graphene Oxide by Atomic Hydrogen Annealing  
A. Heya, N. Matsuo, *Univ. of Hyogo, Japan*

— Lunch —

**Symposium 3 : Next-Generation Thin-Film Solar Cells**

(13 : 35 ~ 15 : 05)

**Chairpersons :** K. Ohdaira, *JAIST, Japan*

T. Suemasu, *Univ. of Tsukuba, Japan*

13 : 35 (S3-1) Optoelectronic Properties and Photo-Physics of Large Grain Hybrid Perovskites (Invited)

A. D. Mohite, W. Nie, J. C. Blancon, H. Tsai, G. Gupta, *Los Alamos Nat'l Lab., USA*

14 : 05 (S3-2) Recent Progress in  $\text{BaSi}_2$  Solar Cells (Invited)

T. Suemasu, *Univ. of Tsukuba, Japan*

14 : 35 (S3-3) Fabrication of Earth-Abundant CZTS Thin Film Solar Cells (Invited)

H. Katagiri, K. Jimbo, *Nat'l Inst. of Technol., Nagaoka College, 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*  
K. Ohdaira, *JAIST, Japan*

**FPDp**

- (P-1) Highly Efficient and Inverted Tandem Organic Light-Emitting Devices Using a  $\text{MoO}_3/\text{Al}/\text{MoO}_3$  Charge Generation Layer  
T. -H. Yeh<sup>1</sup>, P. -C. Chang<sup>1</sup>, Y. -Z. Li<sup>2</sup>,  
S. -W. Liu<sup>1</sup>, S. -B. Chen<sup>2</sup>, C. -C. Lee<sup>2</sup>, <sup>1</sup>*Ming Chi Univ. of Technol., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ. of Sci. and Technol., Taiwan*
- (P-2) Optimal Parameters for Parallax Multi-Viewer Curved Autostereoscopic Display  
Y. -J. Yang<sup>1</sup>, W. -C. Lin<sup>1</sup>, Y. -J. Chen<sup>1</sup>,  
K. -C. Huang<sup>2</sup>, H. Y. Lin<sup>1</sup>, <sup>1</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>2</sup>*Industrial Technol. Res. Inst., Taiwan*
- (P-3) Block-Based Content Adaptive Backlight Controller VLSI Design for Local Dimming LCDs  
S. -L. Chen<sup>1</sup>, H. -J. Tsai<sup>1</sup>, T. -L. Lin<sup>1</sup>,  
H. -Y. Lee<sup>2</sup>, <sup>1</sup>*Chung Yuan Christian Univ., Taiwan*, <sup>2</sup>*Abbeydorney HK Limited., Hong Kong*
- (P-4) Factorial Designs of Multi-Coatings for Induced Stresses of Advanced Flexible Displays  
C. -C. Lee, *Chung Yuan Christian Univ., Taiwan*
- (P-5) Novel a-IGZO Pixel Circuit Adopting External Circuit for Use in 3-D AMOLED Displays  
M. -X. Wang, P. -S. Chen, C. -L. Lin,  
*Nat'l Cheng Kung Univ., Taiwan*
- (P-6) Mesh-Based Hologram Synthesis for Holographic Wavefront Printer  
J. Hong, Y. Kim, S. Hong, C. Shin, H. Kang,  
*Korea Electronics Technol. Inst., Korea*
- (P-7) Novel Pixel Circuit to Enlarge Operation Voltage for Blue-Phase Liquid Crystal Displays  
C. -H. Chang, C. -L. Lin, P. -S. Chen,  
*Nat'l Univ. of Cheng Kung, Taiwan*

- (P-8) Extraction Efficiency of Organic Light Emitting Diodes with Two-Dimensional Photonic Quasi-Crystal Structure  
M. -Y. Chang, C. -C. Lin, M. -Y. Huang,  
*Nat'l Sun Yat-Sen Univ., Taiwan*
- (P-9) Overview of Design Considerations for Electrophoretic E-Paper and Strategies for Achieving Full-Color  
B. -R. Yang, *Sun Yat-Sen Univ., China*
- (P-10) A New AC Biased Pixel Circuit for Active Matrix Organic Light-Emitting Diode Displays  
C. Wang, X. Meng, H. -M. Lam, H. Lu,  
S. Zhang, *Peking Univ., China*
- (P-11) High Performance Green Exciplex OLED  
W. -Y. Hung, P. -Y. Chiang, *Nat'l Taiwan Ocean Univ., Taiwan*
- (P-12) New PCT Host to Achieve High Efficiency Blue Phosphorescent Organic Light Emitting Diode  
H. -J. Gao<sup>1</sup>, Y. -H. Hung<sup>1</sup>, T. -L. Chiu<sup>1</sup>,  
Y. -C. Li<sup>2</sup>, J. -J. Huang<sup>2</sup>, H. -C. Ho<sup>3</sup>, C. -F. Lin<sup>4</sup>,  
J. H. Lee<sup>2</sup>, M. -K. Leung<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>3</sup>*Industrial Technol. Res. Inst., Taiwan*, <sup>4</sup>*Nat'l United Univ., Taiwan*
- (P-13) Novel Benzimidazole/Carbazole Hybrid Ambipolar Molecules and Application in PhOLEDs  
J. -J. Huang<sup>1</sup>, Y. -H. Hung<sup>2</sup>, L. -K. Yun<sup>1</sup>,  
M. -K. Leung<sup>1</sup>, T. -L. Chiu<sup>2</sup>, J. H. Lee<sup>1</sup>, <sup>1</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>2</sup>*Yuan Ze Univ., Taiwan*
- (P-14) Blue Phosphorescent Organic Light-Emitting Diode with Triazole Host Achieving High Current Efficiency  
Y. -H. Lan<sup>1</sup>, Y. -C. Bai<sup>2</sup>, N. -J. Chen<sup>1</sup>,  
J. -J. Huang<sup>1</sup>, B. -Y. Lin<sup>1</sup>, C. -H. Hsiao<sup>1</sup>,  
M. -K. Leung<sup>1</sup>, M. -K. Wei<sup>2</sup>, C. -F. Lin<sup>3</sup>,  
T. -L. Chiu<sup>4</sup>, J. -H. Lee<sup>1</sup>, <sup>1</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>2</sup>*Nat'l Dong Hwa Univ., Taiwan*, <sup>3</sup>*Nat'l United Univ., Taiwan*, <sup>4</sup>*Yuan Ze Univ., Taiwan*

- (P-15) Flexible Green Phosphorescent Organic Light-Emitting Devices on Copy Paper Substrates  
M. -Y. Ha, D. -Y. Yoon, D. -Y. Park, S. -J. Choi, D. -G. Moon, *Soonchunhyang Univ., Korea*
- (P-16) Device Performances of Exciplex Organic Light-Emitting Diodes with Different Emitting Layer Thickness  
B. -Y. Lin<sup>1</sup>, Y. Hsiao<sup>1</sup>, M. -Z. Lee<sup>1</sup>, P. -C. Tseng<sup>1</sup>, T. -L. Chiu<sup>2</sup>, C. -F. Lin<sup>3</sup>, J. -H. Lee<sup>1</sup>, <sup>1</sup>Nat'l Taiwan Univ., Taiwan, <sup>2</sup>Yuan Ze Univ., Taiwan, <sup>3</sup>Nat'l United Univ., Taiwan
- (P-60) Efficient Red Phosphorescent OLEDs Employing 2-Phenylcarbazoles-Based Hole Transport Materials  
C. -H. Chang<sup>1</sup>, G. Krucaite<sup>2</sup>, D. Lo<sup>1</sup>, Y. -L. Chen<sup>1</sup>, C. -C. Su<sup>1</sup>, T. -C. Lin<sup>1</sup>, J. V. Grazulevicius<sup>2</sup>, L. Peciulyte<sup>2</sup>, S. Grigalevicius<sup>2</sup>, <sup>1</sup>Yuan Ze Univ., Taiwan, <sup>2</sup>Kaunas Univ. of Technol., Lithuania
- (P-L1) Reducing Roll-Off Effect of Efficient Green Quantum-Dot Light-Emitting Diodes via Composition-Gradient Thick-Shell Quantum Dots  
H. -T. Vu<sup>1</sup>, Y. -K. Su<sup>1</sup>, C. -Y. Huang<sup>2</sup>, H. -C. Yu<sup>1</sup>, R. -K. Chiang<sup>3</sup>, C. -J. Chen<sup>3</sup>, <sup>1</sup>Nat'l Cheng Kung Univ., Taiwan, <sup>2</sup>Nat'l Taitung Univ., Taiwan, <sup>3</sup>Far East Univ., Taiwan
- (P-L2) High Efficiency Blue Phosphorescent Organic Light-Emitting Diode Using Tetraphenylsilane Core Molecule as Host Material  
C. -P. Chen<sup>1</sup>, C. -H. Huang<sup>1</sup>, J. -H. Lee<sup>1</sup>, C. -F. Lin<sup>2</sup>, T. -L. Chiu<sup>3</sup>, M. -K. Leung<sup>1</sup>, <sup>1</sup>Nat'l Taiwan Univ., Taiwan, <sup>2</sup>Nat'l United Univ., Taiwan, <sup>3</sup>Yuan Ze Univ., Taiwan
- (P-L3) High Current Gain Organic Upconversion Device Using Sublimated Chloroaluminum Phthalocyanine as a Charge Generation Layer  
Y. -Z. Li<sup>1</sup>, C. -J. Shih<sup>1</sup>, E. -H. Chen<sup>1</sup>, B. -C. Huang<sup>1</sup>, C. -C. Lee<sup>1</sup>, J. -Y. Guo<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



- (P-L4) Bright Yellow Up-Conversion in a LaOF  
Containing Er<sup>3+</sup> and Yb<sup>3+</sup>  
K. Ohyama, T. Nonaka, S. Yamamoto, *Ryukoku  
Univ., Japan*

## **TFTp**

- (P-17) High-Performance Low-Temperature P-Channel  
Polycrystalline-Germanium Thin-Film  
Transistors via Continuous Wave Laser  
Crystallization  
C. -Y. Wu, Y. -S. Li, C. -H. Chou, H. -C. Cheng,  
*Nat'l Chiao Tung Univ., Taiwan*
- (P-18) Self-Aligned Metal Double-Gate Junctionless  
P-Channel Low-Temperature Polycrystalline-  
Germanium Thin-Film Transistors with a Thin  
Germanium Channel on a Glass Substrate  
A. Hara, Y. Nishimura, H. Ohsawa, *Tohoku  
Gakuin Univ., Japan*
- (P-19) Withdrawn
- (P-20) Characteristics of Amorphous In-Ga-Zn-O Thin-  
Film-Transistors with Channel Layer Deposited  
by Bias Sputtering  
M. Zhang, X. Xiao, X. Ju, X. Zhang, S. Zhang,  
*Peking Univ., China*
- (P-21) Comparison of N<sub>2</sub> and Ar Plasma Treatment for  
Source/Drain Formation in Self-Aligned Top-  
Gate Amorphous InGaZnO Thin Film Transistor  
H. Lu, C. Ren, X. Xiao, Y. Xiao, C. Wang,  
S. Zhang, *Peking Univ., China*
- (P-22) Oxygen Partial Pressure and Annealing  
Temperature Influence on the Performance of  
Back-Channel-Etch Zinc Tin Oxide Thin Film  
Transistors  
Y. Xiao, X. Xiao, L. Zhang, X. Ju, H. Lu,  
S. Zhang, *Peking Univ., China*
- (P-23) Impact of Wet Etchant with Different PH Value  
on the Performance of Back-Channel-Etch a-  
IGZO Thin-Film-Transistor  
C. Ren, H. Lu, X. Xiao, W. Deng, Y. Xiao,  
S. Zhang, *Peking Univ., China*

- (P-24) 1/f Noise Characteristics of P-Channel Tin Monoxide Thin-Film Transistors  
C. -Y. Jeong, H. -J. Kim, J. -H. Lee, S. -D. Bae, H. -I. Kwon, *Chung-Ang Univ., Korea*
- (P-25) Light Illumination Effect in AIZTO/IZO Dual-Channel TFTs  
H. -S. Choi<sup>1</sup>, J. -H. Yang<sup>2</sup>, J. H. Choi<sup>2</sup>, C. -S. Hwang<sup>2</sup>, S. H. Cho<sup>2</sup>, S. Jeon<sup>3</sup>, <sup>1</sup>*Chosun Univ., Korea*, <sup>2</sup>*Electronics Telecommunications Res. Inst., Korea*, <sup>3</sup>*Korea Univ., Korea*
- (P-26) Estimation of Threshold Voltage Shift in a-IGZO TFTs under Different Bias Temperature Stress by Improved Stretched-Exponential Equation  
X. Ju, X. Xiao, Y. Xiao, S. Zhang, *Peking Univ., China*
- (P-27) Enhancement of Gate-Bias and Current Stress Stability of P-Type SnO Thin-Film Transistors with SiN<sub>x</sub>/HfO<sub>2</sub> Passivation Layers  
S. -M. Hsu<sup>1</sup>, Y. -S. Li<sup>1</sup>, M. -S. Tu<sup>1</sup>, J. -C. He<sup>1</sup>, I. -C. Chiu<sup>1</sup>, P. -G. Chen<sup>1, 2</sup>, M. -H. Lee<sup>2</sup>, J. -Z. Chen<sup>1</sup>, I. -C. Cheng<sup>1</sup>, <sup>1</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>2</sup>*Nat'l Taiwan Normal Univ., Taiwan*
- (P-28) Physics-Based Modeling of Gate-Leakage Current in AlGaN/GaN High Electron Mobility Transistors  
X. Ma, F. Yu, W. Deng, J. Huang, *Jinan Univ., China*
- (P-29) Withdrawn
- (P-30) Correlation between Contact Angle and Electrical Properties in Pentacene and C6-DNT-V-Based Organic Thin Film Transistors  
S. Shaari<sup>1,2</sup>, S. Naka<sup>1</sup>, H. Okada<sup>1</sup>, <sup>1</sup>*Univ., of Toyama, Japan*, <sup>2</sup>*Univ. Malaysia Perlis, Malaysia*

- (P-31) Interface Engineering for Improving the Electrical Stability and Photoelectric Effects of Organic Memory Transistors  
Y. -F. Wang, S. -K. Peng, P. -K. Huang, H. -L. Chen, W. -Y. Choua, *Nat'l Cheng Kung Univ., Taiwan*
- (P-32) Withdrawn
- (P-33) Withdrawn
- (P-34) Withdrawn
- (P-35) Hybrid-Type Temperature Sensor Using Thin-Film Transistors Generating Rectangle Output Waveform - Operating Confirmation by Actual Experiment -  
H. Hayashi, K. Kito, S. Kitajima, T. Hori, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-36) Evaluation of the Infrared-Ray Sensors Using Poly-Si TFTs  
K. Kito<sup>1</sup>, S. Kitajima<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Kimura<sup>1</sup>, M. Tamura<sup>1</sup>, M. Inoue<sup>2</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Huawei Technologies Japan K.K., Japan*
- (P-37) Characteristic Evaluation of Photo-Induced Current by Infrared Light Irradiation in Low-Temperature Poly-Si TFT  
S. Kitajima<sup>1</sup>, K. Kito<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Kimura<sup>1</sup>, M. Inoue<sup>2</sup>, <sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Huawei Technologies Japan K.K., Japan*
- (P-38) Investigations on Device Design Parameters of All-Oxide Transparent Charge-Trap Memory Thin-Film Transistors  
D. -J. Yun, H. -B. Kang, S. -M. Yoon, *Kyung Hee Univ., Korea*
- (P-39) Neural Network Using FPGA for Neurons and IGZO Thin Films for Synapses  
Y. Koga<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-L5) Growth of Single Crystal Stripe in Si Film on Rolled Flexible Substrate by Micro-Chevron-Shaped CW Laser Scanning  
W. Yeh, S. Moriyama, *Shimane Univ., Japan*
- (P-L6) Highly Stable Top Gate Top Contact ITZO TFT Deposited by Using High Density Plasma Sputtering  
J. H. Ahn<sup>1</sup>, K. H. Lee<sup>1</sup>, J. C. Do<sup>2</sup>, W. W. Park<sup>2</sup>, S. -H. K. Park<sup>1</sup>, <sup>1</sup>*Korea Advanced Inst. of Sci. and Technol., Korea*, <sup>2</sup>*Advanced Vacuum and Clean Equipment Optimizer, Korea*
- (P-L7) Low-Temperature Poly-Si TFTs with Sputtered HfO<sub>2</sub> Gate Stack on Glass Substrate  
A. Hara, T. Meguro, *Tohoku Gakuin Univ., Japan*
- (P-L8) Electrical Stability of Flexible a-IGZO TFT Under Strained Condition  
M. M. Hasan, M. M. Billah, J. Jang, *Kyung Hee Univ., Korea*

#### **TFMDp**

- (P-40) Formation of nc-Si in SiOx by Flash Lamp Annealing  
N. Yoshioka<sup>1</sup>, A. Heya<sup>1</sup>, N. Matsuo<sup>1</sup>, Y. Nakamura<sup>2</sup>, G. Yokomori<sup>2</sup>, M. Yoshioka<sup>2</sup>, K. Kohama<sup>3</sup>, K. Ito<sup>3</sup>, <sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*USHIO INC., Japan*, <sup>3</sup>*Osaka Univ., Japan*
- (P-41) Large-Grain Sn-Doped Ge (100) on Insulator by Aluminum-Induced Crystallization at Low-Temperature for Flexible Electronics  
M. Sasaki, M. Miyao, T. Sadoh, *Kyushu Univ., Japan*
- (P-42) High Optical Conversion Capability within the Interface between Graphene and Si under Zero Bias and Visible to Near Infrared Regime  
C. -C. Hsiao<sup>1</sup>, M. -Q. Wei<sup>1</sup>, T. -T. Ren<sup>1</sup>, B. -Y. Chen<sup>2</sup>, M. -Y. Li<sup>2</sup>, J. -M. Liou<sup>2</sup>, F. -H. Ko<sup>1</sup>, Y. -S. Lai<sup>2</sup>, <sup>1</sup>*Nat'l Chiao Tung Univ., Taiwan*, <sup>2</sup>*Nat'l Nano Device Labs., Taiwan*

- (P-43) Study on Graphene Formation by Hot Mesh Deposition  
S. Fuji, A. Heya, N. Matsuo, *Univ. of Hyogo, Japan*
- (P-44) Investigation of the Effects of Mg Incorporation into Solution-Processed InZnO Semiconductor Thin Films for UV Photodetectors  
C. -Y. Tsay, P. -H. Wu, *Feng Chia Univ., Taiwan*
- (P-45) Thickness Effect of IGZO Layer in Light-Addressable Potentiometric Sensor  
C. -H. Chen, C. -M. Yang, L. -B. Chang, C. -S. Lai, *Chang Gung Univ., Taiwan*
- (P-46) Investigation of Electrical Characteristics of Multi-Thin-Film Metal Electrodes Deposited on Flexible Polydimethylsiloxane Substrates by Using an Automatic Folding Test System  
P. -C. Wang<sup>1</sup>, B. -J. Wen<sup>2</sup>, T. -Y. Lee<sup>1</sup>, P. -H. Hung<sup>2</sup>, H. Y. Chen<sup>3</sup>, *<sup>1</sup>Nat'l Tsing Hua Univ., Taiwan, <sup>2</sup>Nat'l Taiwan Ocean Univ., Taiwan, <sup>3</sup>Industrial Technol. Res. Inst., Taiwan*
- (P-L9) Multi-Functional Touch Sensors with Strained P(VDF-TrFE) Deposited on Metal Oxide Thin Film Transistor  
T. Jin<sup>1</sup>, J. Ryu<sup>1</sup>, H. S. Kang<sup>2</sup>, K. No<sup>1</sup>, S. -H. K. Park<sup>1</sup>, *<sup>1</sup>Korea Advanced Inst. of Sci. and Technol., Korea, <sup>2</sup>LG Display, Korea*
- (P-L10) All-Solid-State Electrochromic Device Integrated with Near-IR Blocking Layer for Image Sensor and Energy-Saving Glass Application  
M. -C. Wang, Y. -C. Chen, M. -H. Hsieh, W. -F. Tsai, D. -J. Jan, *Inst. of Nuclear Energy Res., Taiwan*
- (P-L11) Performance Enhancement of Pt/ZnO/Pt Resistive Random Access Memory (RRAM) with UV-Ozone Treatment  
D. -L. Chen<sup>1</sup>, H. -C. Yu<sup>1</sup>, C. -C. Yang<sup>1</sup>, Y. -K. Su<sup>1,2</sup>, C. -W. Chou<sup>1</sup>, J. -L. Ruan<sup>3</sup>, *<sup>1</sup>Nat'l Cheng Kung Univ., Taiwan, <sup>2</sup>Kun Shan Univ., Taiwan, <sup>3</sup>Nat'l Chung Shan Inst. of Sci. and Technol., Taiwan*

**PVp**

- (P-47) Numerical Modeling of Device Structure for FeS<sub>2</sub> Thin Film Solar Cells  
S. Uchiyama, Y. Ishikawa, Y. Kawamura, Y. Uraoka, *Nara Inst. of Sci. and Technol., Japan*
- (P-48) High Photothermal Properties in Silicon Nanostructures  
T. -T. Ren<sup>1</sup>, M. -Q. Wei<sup>1</sup>, C. -C. Hsiao<sup>1</sup>, B. -Y. Chen<sup>2</sup>, M. -Y. Li<sup>2</sup>, J. -M. Liou<sup>2</sup>, F. -H. Ko<sup>1</sup>, Y. -S. Lai<sup>2</sup>, <sup>1</sup>*Nat'l Chiao Tung Univ., Taiwan*, <sup>2</sup>*Nat'l Applied Res. Labs., Taiwan*
- (P-49) Improving Optical and Electrical Properties of Micropillar and Black-Si Solar Cells by Combining Them into a Superstructure  
J. Shieh, C. Y. You, J. M. Liu, C. C. Chiu, *Nat'l United Univ., Taiwan*
- (P-50) Doping Profile Control of Epitaxial-Like Si Emitting Layer for the Application of c-Si Solar Cells  
C. -C. Lee, Y. -L. Hsieh, T. T. Li, J. -Y. Chang, *Nat'l Central Univ., Taiwan*
- (P-51) Microwave Rapid Heating Used for Diffusing Impurities in Silicon  
K. Ota<sup>1</sup>, S. Kimura<sup>1</sup>, M. Hasumi<sup>1</sup>, A. Suzuki<sup>2</sup>, M. Ushijima<sup>2</sup>, T. Sameshima<sup>1</sup>, <sup>1</sup>*Tokyo Univ. of Agriculture and Technol., Japan*, <sup>2</sup>*Tokyo Electron Limited, Japan*
- (P-52) Dye Sensitized Solar Cells with Carbon Mixed Conducting Polymer Counter Electrodes  
C. -F. Lin<sup>1</sup>, C. -L. Chen<sup>1</sup>, P. -H. Chen<sup>1</sup>, H. -C. Han<sup>2</sup>, K. -Y. Chiu<sup>3</sup>, Y. O. Su<sup>3</sup>, <sup>1</sup>*Nat'l United Univ., Taiwan*, <sup>2</sup>*Res. Ctr. for Applied Sci., Taiwan*, <sup>3</sup>*Nat'l Chi Nan Univ., Taiwan*
- (P-53) Gallium-Doped Zinc Oxide Films as Transparent and Conductive Substrates Applying in Dye-Sensitized Solar Cell  
C. Li, S. Hou, *Kochi Univ. of Technol., Japan*

- (P-54) Sol-Gel Process ZnO Thin Film as the Electron Transport Layer in Inverted Polymer Solar Cell  
M. -Y. Chang, C. -C. Lin, C. -K. Huang, *Nat'l Sun Yat-Sen Univ., Taiwan*
- (P-55) ITO-Free Inverted Small Molecule Solar Cells  
M. -Y. Lin<sup>1</sup>, S. -H. Wu<sup>2</sup>, Y. -L. Kang<sup>3</sup>,  
Y. -C. Chang<sup>2</sup>, C. -W. Chu<sup>2</sup>, <sup>1</sup>*Chung Yuan Christian Univ., Taiwan*, <sup>2</sup>*Res. Ctr. of Applied Sci., Taiwan*, <sup>3</sup>*Nat'l Taiwan Univ., Taiwan*
- (P-56) Effects of Molybdenum Trioxide Thickness of Organic Photovoltaic with Silver Anode  
C. -L. Lin<sup>1</sup>, T. -L. Chiu<sup>1</sup>, C. -H. Chen<sup>2</sup>,  
C. -F. Lin<sup>3</sup>, J. H. Lee<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ., Taiwan*, <sup>3</sup>*Nat'l United Univ., Taiwan*
- (P-57) Fully Printable Mesoscopic Perovskite Solar Cells; Effect of NiO Layer on the Device Performance  
N. Peiris<sup>1,2</sup>, G. Mizuta<sup>1</sup>, H. Kanda<sup>1</sup>, T. Nishina<sup>1</sup>,  
S. Ito<sup>2</sup>, H. Segawa<sup>1</sup>, <sup>1</sup>*The Univ. of Tokyo, Japan*, <sup>2</sup>*Univ. of Hyogo, Japan*
- (P-58) Investigation of High Efficiency Methyl Ammonium Lead Halide Perovskite-Si Tandem Solar Cell  
S. M. Iftiqar, J. Yi, *Sungkyunkwan Univ., Korea*
- (P-59) Perovskite/P-Type Crystal Silicon Tandem Solar Cells  
H. Kanda<sup>1</sup>, A. Uzum<sup>1</sup>, H. Nishino<sup>2</sup>, S. Ito<sup>1</sup>,  
<sup>1</sup>*Univ. of Hyogo, Japan*, <sup>2</sup>*Osaka Gas Corp., Japan*
- (P-L12) Low-Pressure Hybrid Chemical Vapor Deposition for Efficient Perovskite Solar Cells and Module  
M. -H. Li, P. -S. Shen, J. -S. Chen,  
Y. -H. Chiang, P. Chen, T. -F. Guo, *Nat'l Cheng Kung Univ., Taiwan*

Friday, July 8

**Special Session : New Driving Technologies**

(9 : 15 ~ 10 : 25)

**Chairpersons :** R. Hattori, *Kyushu Univ., Japan*  
M. Mitani, *Sharp Corp., Japan*

9 : 15 (SP-1) In-Cell Capacitive Touch Panel Structures and Their Readout Circuits (Invited)  
S. -H. Lee, J. -S. An, S. -K. Hong, O. -K. Kwon, *Hanyang Univ., Korea*

9 : 40 (SP-2) High-Definition In-Cell Touch Panel with Parallel Scanning Method (Invited)  
K. Tada, K. Kida, S. Yamagishi, T. Maruyama, J. Mugiraneza, Y. Sugita, H. Kawamori, T. Saitoh, H. Shioe, *Sharp Corp., Japan*

10 : 05 (SP-3) Blue-Phase Pixel Circuit Design to Enlarge Operation Voltage and Combine Polarity Inversion with a-IGZO Thin-Film-Transistors  
C. -E. Wu, C. -L. Lin, M. -X. Wang, *Nat'l Cheng Kung Univ., Taiwan*

— Coffee Break —

**Session 4 : High-Performance TFTs (10 : 40 ~ 11 : 50)**

**Chairpersons :** M. -H. Yoon, *Gwangju Inst. of Sci. and Technol., Korea*  
S. Horita, *JAIST, Japan*

10 : 40 (4-1) Understanding of Carrier Transport in High-Performance Solid Phase Crystallized Poly-Si Nano-Wire Transistors (Invited)  
M. Oda, K. Sakuma, Y. Kamimuta, M. Saitoh, *Toshiba Corp., Japan*

11 : 05 (4-2) Radio Frequency Electronics in a-IGZO TFT Technology (Invited)  
K. Ishida<sup>1</sup>, T. Meister<sup>1</sup>, R. Shabanpour<sup>1</sup>, B. K. Boroujeni<sup>1</sup>, C. Carta<sup>1</sup>, G. Cantarella<sup>2</sup>, L. Petti<sup>2</sup>, N. Münzenrieder<sup>2,3</sup>, G. A. Salvatore<sup>2</sup>, G. Tröster<sup>2</sup>, F. Ellinger<sup>1</sup>, <sup>1</sup>*Technische Universität Dresden, Germany*, <sup>2</sup>*Swiss Federal Inst. of Technol., Switzerland*, <sup>3</sup>*Univ. of Sussex, United Kingdom*



11 : 30 (4-3) Ultrahigh-Performance Poly-Si Thin Film Transistor Using Multi-Line Beam Continuous-Wave Laser Lateral Crystallization  
T. T. Nguyen, M. Hiraiwa, T. Hirata, S. Kuroki,  
*Hiroshima Univ., Japan*

— Lunch —

**Session 5 : Perovskite Photovoltaics** (13: 00 ~ 13 : 40)

**Chairpersons :** C. Li, *Kochi Univ. of Technol., Japan*  
T. Miyadera, *AIST, Japan*

13 : 00 (5-1) Laser Deposition for the Controlled Co-Deposition of Organolead Halide Perovskite  
T. Miyadera, T. Sugita, H. Tampo, K. Matsubara,  
M. Chikamatsu, *Nat'l Inst. of Advanced Industrial Sci. and Technol., Japan*

13 : 20 (5-2) Internal Resistance of Perovskite Solar Cells under Low Illuminance Conditions  
I. Raifuku<sup>1</sup>, Y. Ishikawa<sup>1</sup>, S. Ito<sup>2</sup>, Y. Uraoka<sup>1</sup>,  
<sup>1</sup>*Nara Inst. of Sci. and Technol., Japan*, <sup>2</sup>*Univ. of Hyogo, Japan*

**Session 6 : Advanced Processing and Devices**

(13: 40 ~ 14 : 20)

**Chairpersons :** Y. Wang, *Univ. of Maryland, USA*  
T. Matsuda, *Ryukoku Univ., Japan*

13 : 40 (6-1) Surface Passivation of Crystalline Silicon by Heat Treatment in Liquid Water  
T. Motoki<sup>1</sup>, K. Yasuta<sup>1</sup>, H. Suzuki<sup>1</sup>,  
T. Nakamura<sup>1</sup>, M. Hasumi<sup>1</sup>, T. Sameshima<sup>1</sup>,  
T. Mizuno<sup>2</sup>, <sup>1</sup>*Tokyo Univ. of Agriculture and Technol., Japan*, <sup>2</sup>*Kanagawa Univ., Japan*

14 : 00 (6-2) Electroluminescence Emission Patterns of Organic Light-Emitting Transistors Based on Crystallized Fluorene-Type Polymers  
H. Kajii, T. Ohtomo, Y. Ohmori, *Osaka Univ., Japan*

— Coffee Break —

## Session 7 : Basic Properties of Oxide TFTs

(14 : 35 ~ 15 : 40)

**Chairpersons :** K. Ishida, *Technische Universitaet Dresden, Germany*  
Y. Terai, *JOLED, Japan*

14 : 35 (7-1) High Mobility SnO<sub>2</sub> TFT for Display and Future IC (Invited)  
A. Chin<sup>1</sup>, C. W. Shih<sup>1</sup>, C. F. Lu<sup>2</sup>, W. F. Su<sup>2</sup>,  
<sup>1</sup>Nat'l Chiao Tung Univ., Taiwan, <sup>2</sup>Nat'l Taiwan Univ., Taiwan

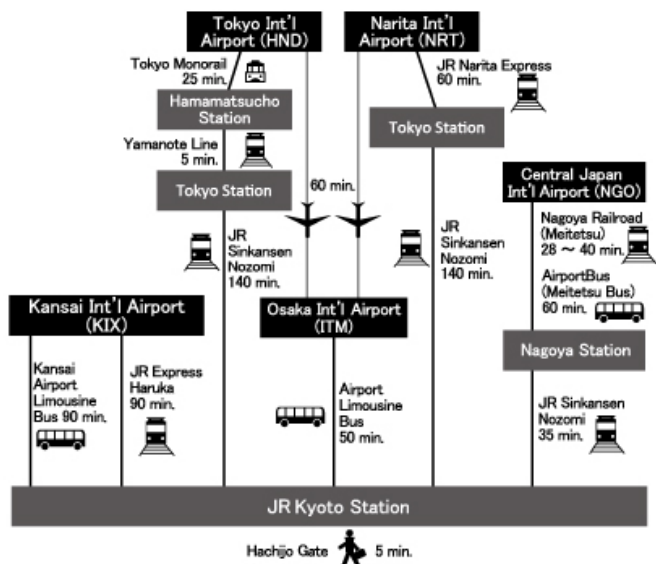
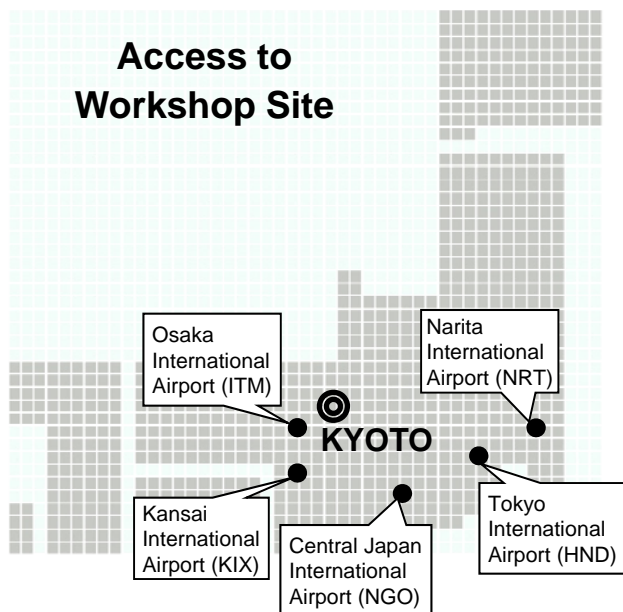
15 : 00 (7-2) Why High-Pressure Sputtering must be Avoided to Deposit a-In-Ga-Zn-O Films  
K. Ide, M. Kikuchi, M. Sasase, H. Hiramatsu, H. Kumomi, H. Hosono, T. Kamiya, *Tokyo Inst. of Technol., Japan*

15 : 20 (7-3) Comparative Study on Light-Induced Negative-Bias Stress Stabilities in Amorphous In-Ga-Zn-O Thin Film Transistors with Photoinduced Transient Spectroscopy  
K. Hayashi, M. Ochi, A. Hino, H. Tao, H. Goto, T. Kugimiya, *Kobe Steel, Japan*

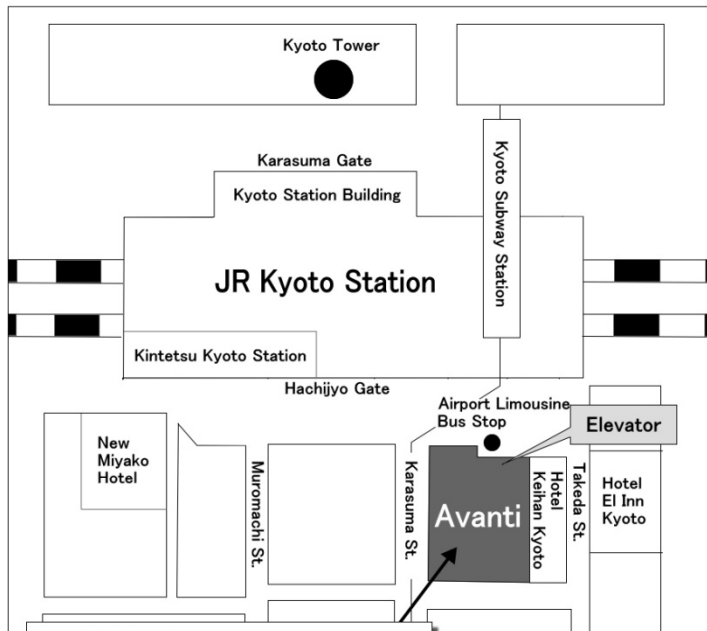
**Closing Remarks** (15 : 40 ~ 15 : 45)

**Author Interviews** (15 : 45 ~ 16 : 15)

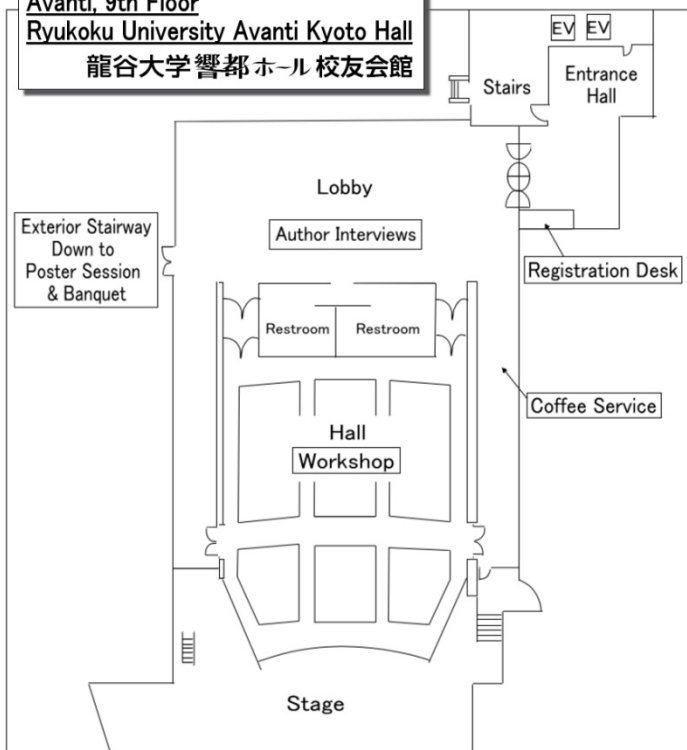
# Access to Workshop Site



Ryukoku University Avanti Kyoto Hall (Avanti 9th Floor)  
 龍谷大学響都ホール校友会館



**Avanti, 9th Floor**  
**Ryukoku University Avanti Kyoto Hall**  
 龍谷大学響都ホール 校友会館



**THE TWENTY-THIRD INTERNATIONAL WORKSHOP ON  
ACTIVE-MATRIX FLATPANEL DISPLAYS AND DEVICES  
— TFT TECHNOLOGIES AND FPD MATERIALS —  
(AM-FPD '16)**

c/o Hitachi Urban Support, Ltd.  
3401, Hayano, Mobara, Chiba 297-0037, Japan  
Tel : +81-475-23-1150  
Fax : +81-475-25-7703  
e-mail: [secretariat@amfpd.jp](mailto:secretariat@amfpd.jp)  
<http://www.amfpd.jp>