





























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

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

**FPDp**

- (P-1) All-Optically Controllable Scattering Mode Light Modulator Based on Azobenzene Liquid Crystals and Poly (N-Vinylcarbazole) Films  
Y. -C. Liu<sup>1</sup>, K. -T. Cheng<sup>1</sup>, Y. -D. Chen<sup>2</sup>,  
A. Y. -G. Fuh<sup>2</sup>, <sup>1</sup>*Nat'l Central Univ., Taiwan*,  
<sup>2</sup>*Nat'l Cheng Kung Univ., Taiwan*
- (P-2) Improving the Efficiency of White OLEDs Based on a Gradient Refractive Index Substrate  
C. -H. Chang<sup>1</sup>, T. -F. Chang<sup>1</sup>, Y. -J. Lo<sup>1</sup>,  
Y. -H. Liang<sup>1</sup>, Y. -J. Wu<sup>1</sup>, H. -H. Chang<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*, <sup>2</sup>*Vanung Univ., Taiwan*
- (P-3) Production of Efficient Exciplex-Based Red, Green, Blue and White Organic Light-Emitting Diodes  
C. -H. Chang<sup>1</sup>, S. -W. Wu<sup>1</sup>, S. -E. Lin<sup>1</sup>,  
C. -W. Huang<sup>1</sup>, C. -T. Hsieh<sup>1</sup>, N. -P. Chen<sup>1</sup>,  
H. -H. Chang<sup>2</sup>, <sup>1</sup>*Yuan Ze Univ., Taiwan*,  
<sup>2</sup>*Vanung Univ., Taiwan*
- (P-4) Electron-Transporting Layer Effects on Blue Phosphorescent Organic Light-Emitting Diodes  
T. -C. Lin, T. -L. Chiu, *Yuan Ze Univ., Taiwan*
- (P-5) Using Carbazole-Triazole Derives Host in Blue Phosphorescent OLEDs  
Y. -H. Hung, T. -L. Chiu, *Yuan Ze Univ., Taiwan*
- (P-L1) Strong Light of Red up-Conversion in a Zn O-TiO<sub>2</sub> Composite Containing Er<sup>3+</sup> and Yb<sup>3+</sup>  
K. Ohyama, T. Nonaka, T. Kanamori,  
S. Yamamoto, *Ryukoku Univ., Japan*

- (P-L2) Luminescence Characterization of  
LaOF:Yb<sup>3+</sup>/Er<sup>3+</sup> up-Conversion Phosphor  
K. Ohyama, T. Nonaka, S. Yamamoto, *Ryukoku Univ., Japan*
- (P-L3) Optical Properties of Distributed Inorganic EL  
Devices with Multi-Stripe Electrode  
T. Nonaka, S. Yamamoto, *Ryukoku Univ., Japan*
- (P-L4) Modeling for Carrier Transportation in Organic  
Light-Emitting Diode by Considering Effective  
Tail States  
I. -H. Lu, Y. -R. Wu, *Nat'l Taiwan Univ., Taiwan*

### **TFTp**

- (P-6) Study on Hydrogenation after BLDA in Si TFT  
with Metal Source/Drain  
K. Shimoda<sup>1</sup>, T. Ashitomi<sup>1</sup>, T. Okada<sup>1</sup>,  
T. Noguchi<sup>1</sup>, O. Nishikata<sup>2</sup>, A. Ota<sup>2</sup>, <sup>1</sup>*Univ. of  
the Ryukyus, Japan, <sup>2</sup>ULVAC, Japan*
- (P-7) Improvement of Poly-Ge TFT Characteristics by  
Atomic Hydrogen Annealing  
A. Heya, S. Hirano, N. Matsuo, *Univ. of  
Hyogo, Japan*
- (P-8) A Novel Double-Gate Thin-Film Transistors  
with Split-Gate and RSD Design  
C. -H. You, X. -Z. Chen, F. -T. Chien, *Feng  
Chia Univ., Taiwan*
- (P-9) Effects of Over-Etching Time on the  
Characteristics of Amorphous IGZO Thin-Film  
Transistors with Back-Channel-Etch Structure  
G. Wang, Z. Song, X. Xiao, S. Zhang, *Peking  
Univ., China*
- (P-10) Fully-Transparent Mo-Doped ZnO TFTs  
Fabricated in Different Oxygen Partial Pressure  
at Low Temperature  
P. Shi<sup>1</sup>, D. Han<sup>1,2</sup>, Y. Zhang<sup>1,2</sup>, W. Yu<sup>1</sup>,  
L. Huang<sup>1,2</sup>, Y. Cong<sup>1,2</sup>, X. Zhou<sup>1,2</sup>, Z. Chen<sup>1</sup>,  
J. Dong<sup>1</sup>, S. Zhang<sup>1</sup>, X. Zhang<sup>1,2</sup>, Y. Wang<sup>1,2</sup>,  
<sup>1</sup>*Peking Univ., China, <sup>2</sup>Beijing Engineering  
Res. Ctr. for Active Matrix Display, China*

- (P-11) Bending Performance and Bias-Stress Stability of the In-Ga-Zn-O TFTs Prepared on Flexible PEN Substrates with Optimum Barrier Structures  
M. -J. Park<sup>1</sup>, D. -J. Yun<sup>1</sup>, M. -K. Ryu<sup>2</sup>, J. -H. Yang<sup>2</sup>, J. -E. Pi<sup>2</sup>, G. -H. Kim<sup>2</sup>, C. -S. Hwang<sup>2</sup>, S. -M. Yoon<sup>1</sup>, <sup>1</sup>*Kyung Hee Univ., Korea*, <sup>2</sup>*Electronics & Telecommunication Res. Inst., Korea*
- (P-12) A Study on Corbino a-IGZO TFTs with Different Bending Curvatures for Flexible Electronics  
W. -C. Huang, S. -Y. Sun, C. -C. Cheng, C. -Y. Liu, M. -F. Chiang, *AU Optronics, Taiwan*
- (P-13) Effect of Top Gate Bias on NBIS in Dual Gate a-IGZO TFTs  
E. Lee, M. D. H. Chowdhury, J. Jang, *Kyung Hee Univ., Korea*
- (P-14) Fabrication of Thienoacene-Based Organic Thin-Film Transistors with Various Interfacial Layers  
S. B. Shaari<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-L5) P-Channel Oxide Thin Film Transistors Using Sol-Gel Solution Processed Nickel Oxide  
T. Lin, X. Li, J. Jang, *Kyung Hee Univ., Korea*
- (P-L6) Evolution of Hydrogen-Related Defect States in Amorphous In-Ga-Zn-O Analyzed by Photoelectron Emission Yield Experiments  
K. Hayashi, A. Hino, H. Tao, M. Ochi, H. Goto, T. Kugimiya, *Kobe Steel, Japan*
- (P-L7) Air-Stable N-Type Organic Microribbon Transistors Based on Perylene Diimides Derivatives  
P. -Y. Tseng, G. -W. Hsieh, C. -W. Wang, C. -Y. Hung, C. -W. Tsai, *Nat'l Chiao Tung Univ., Taiwan*



- (P-L8) Hybrid-Type Temperature Sensor Using Thin-Film Transistors Generating Rectangle Output Waveform  
H. Hayashi, K. Kito, S. Kitajima, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-L9) Temperature and Illuminance Detections by Hybrid-Type Carrier-Generation Sensors Using N-Type and P-Type Poly-Si TFTs  
K. Kito, H. Hayashi, S. Kitajima, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*
- (P-L10) Frequency Modulation-Type Capacitance Sensor Using Amorphous In-Ga-Zn-O Thin-Film Transistors  
Y. Koga<sup>1</sup>, T. Matsuda<sup>1</sup>, M. Furuta<sup>2</sup>, M. Kimura<sup>1</sup>,  
<sup>1</sup>*Ryukoku Univ., Japan*, <sup>2</sup>*Kochi Univ. of Technol., Japan*
- (P-L11) Improvement of Learning Efficiency in Neural Network Using Poly-Si TFTs by Synapse TFTs with LDD Structure  
R. Morita, Y. Maeda, T. Matsuda, M. Kimura, *Ryukoku Univ., Japan*

#### **TFMDp**

- (P-15) Quasi-Single Crystal SiGe on Insulator by Au-Induced Crystallization for Flexible Electronics  
T. Sadoh<sup>1</sup>, J. -H. Park<sup>1,2</sup>, R. Aoki<sup>1</sup>, M. Miyao<sup>1</sup>,  
<sup>1</sup>*Kyushu Univ., Japan*, <sup>2</sup>*JSPS Res. Fellow, Japan*
- (P-16) The Influence of Annealing Temperature and Film Thickness on Crystallization Behaviors of IGZO Thin Films  
J. Jo<sup>1</sup>, J. Y. Cho<sup>1</sup>, H. K. Hong<sup>1</sup>, S. Kim<sup>2</sup>, J. Lee<sup>2</sup>, J. H. Lim<sup>2</sup>, J. Song<sup>2</sup>, J. H. Kim<sup>1</sup>, J. Heo<sup>1</sup>, <sup>1</sup>*Chonnam Nat'l Univ., Korea*, <sup>2</sup>*Samsung Display, Korea*
- (P-17) Effects of Deposition Inclination Angle on the Mechanical, Optical and Electrical Characteristics of Al-Doped ZnO Films  
T. -C. Li, J. -F. Lin, *Nat'l Cheng Kung Univ., Taiwan*

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

(P-19) Withdrawn

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

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

## **PVp**

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

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

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

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

- (P-24) Boron Subphthalocyanine-Based Organic Photovoltaic Device with Record High Open Circuit Voltage  
P. -S. Wang<sup>1</sup>, C. -C. Lee<sup>1</sup>, J. -H. Lee<sup>1</sup>, L. -Y. Wang<sup>1</sup>, C. -F. Lin<sup>2</sup>, T. -L. Chiu<sup>3</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-25) A Novel Donor-Acceptor-Acceptor Molecular for Planar Mix Heterojunction C<sub>60</sub> Based Organic Solar Cells  
Y. -T. Yang<sup>1</sup>, C. -H. Chen<sup>1</sup>, H. -C. Ting<sup>1</sup>, K. -T. Wong<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-26) Hydrothermal Synthesis of Eu<sup>3+</sup>-Doped NaYF<sub>4</sub> Downconversion Materials for Silicon-Based Solar Cells Applications  
C. -W. Liu<sup>1</sup>, C. -L. Cheng<sup>2</sup>, J. -Y. Yang<sup>3</sup>, <sup>1</sup>Nat'l Yunlin Univ. of Sci. and Technol., Taiwan, <sup>2</sup>Nat'l Formosa Univ., Taiwan, <sup>3</sup>Nat'l Applied Res. Labs., Taiwan
- (P-27) Annihilation Properties of Photo-Induced Carrier in Silicon PN Junction  
M. Hasumi<sup>1</sup>, T. Sameshima<sup>1</sup>, T. Motoki<sup>1</sup>, T. Nakamura<sup>1</sup>, T. Mizuno<sup>2</sup>, <sup>1</sup>Tokyo Univ. of Agriculture and Technol., Japan, <sup>2</sup>Kanagawa Univ., Japan
- (P-28) Reduction in Optical Reflection Loss at Intermediate Adhesive Layer for Mechanical Stacked Multi-Junction Solar Cells  
S. Kimura, S. Yoshidomi, M. Hasumi, T. Sameshima, *Tokyo Univ. of Agriculture and Technol., Japan*
- (P-29) Zn(O,S) Buffer Layers Grown by Atomic Layer Deposition in Cu<sub>2</sub>ZnSn(S,Se)<sub>4</sub> Thin Film Solar Cells  
H. K. Hong, I. Y. Kim, H. K. Park, J. Jo, G. Y. Song, J. H. Kim, J. Heo, *Chonnam Nat'l Univ., Korea*

(P-L14)

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

Y. -Z. Li<sup>1</sup>, T. -H. Su<sup>1</sup>, C. -K. Wang<sup>2</sup>,

K. -T. Wong<sup>2</sup>, S. -W. Liu<sup>1</sup>, <sup>1</sup>*Ming Chi Univ. of Technol., Taiwan*, <sup>2</sup>*Nat'l Taiwan Univ., Taiwan*

Friday, July 3

**Session 4 : High Performance FPD Technologies**

(9 : 00 ~ 9 : 50)

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

- 9 : 00 (4-1) Flexible Displays Using C-Axis-Aligned-Crystal Oxide Semiconductors (Invited)  
J. Koezuka<sup>1</sup>, K. Okazaki<sup>1</sup>, S. Idojiri<sup>1</sup>, Y. Shima<sup>1</sup>,  
K. Takahashi<sup>2</sup>, D. Nakamura<sup>2</sup>, S. Yamazaki<sup>2</sup>,  
<sup>1</sup>*Advanced Film Device, Japan*,  
<sup>2</sup>*Semicond. Energy Lab., Japan*
- 9 : 25 (4-2) Ultra-Low Power Reflective LCD Technology and Its Application for Wearable Devices (Invited)  
Y. Fukunaga, T. Shima, T. Nakao, Y. Teranishi,  
Y. Nakajima, *Japan Display, Japan*

— Coffee Break —

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

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

- 10 : 05 (5-1) Heat Treatment in 110°C Liquid Water Used for Passivating Silicon Surfaces  
T. Nakamura<sup>1</sup>, T. Motoki<sup>1</sup>, T. Sameshima<sup>1</sup>,  
M. Hasumi<sup>1</sup>, T. Mizuno<sup>2</sup>, <sup>1</sup>*Tokyo Univ. of*  
*Agriculture and Technol., Japan*, <sup>2</sup>*Kanagawa*  
*Univ., Japan*
- 10 : 25 (5-2) Nanocrystallized CdS for Detection of UV Light with Picowatt Sensitivity Through Single Shot KrF Laser Treatment  
K. -T. Lin<sup>1</sup>, H. -L. Chen<sup>1</sup>, Y. -L. Liu<sup>1</sup>,  
Y. -C. Tseng<sup>1</sup>, C. -H. Lin<sup>1</sup>, H. -M. Chang<sup>2</sup>,  
J. -M. Liu<sup>2</sup>, Y. -S. Lai<sup>2</sup>, <sup>1</sup>*Nat'l Taiwan Univ.,*  
*Taiwan*, <sup>2</sup>*Nat'l Applied Res. Labs., Taiwan*

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

**Late News** (11:05 ~ 11:35)

- 11 : 05 (L-2) Temperature Dependences of Conductivity in Undoped and Doped Poly-Si Thin Films Grown on YSZ Crystallization-Induction Layers by Two-Step Irradiation Method with Pulsed Laser  
M. T. K. Lien, S. Horita, *Japan Advanced Inst. of Sci. and Technol., Japan*
- 11 : 20 (L-3) Low-Temperature Metal Double-Gate Junctionless P-Channel Polycrystalline-Germanium Thin-Film Transistors with High-K Gate Dielectric on Glass Substrate  
Y. Nishimura, S. Nibe, A. Hara, *Tohoku Gakuin Univ., Japan*

— Lunch —

**Session 6 : New Materials for Thin Film Devices**

(13: 00 ~ 14 : 10)

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

- 13 : 00 (6-1) Doping Stability and Opto-Electronic Performance of Chemical Vapour Deposited Graphene for Plastic Electronic Applications (Invited)  
M. H. Kang, W. I. Milne, M. T. Cole, *Univ. of Cambridge, UK*
- 13 : 25 (6-2) A Combinatorial Device Analysis Method of Oxide Thin-Film Transistors (Invited)  
S. Jeon, *Korea Univ., Korea*
- 13 : 50 (6-3) Unseeded Growth of Poly-Crystalline Ge with (111) Surface Orientation on Insulator by Pulsed Green Laser Annealing  
M. Horita<sup>1</sup>, T. Takao<sup>1</sup>, Y. Nieda<sup>1</sup>, Y. Ishikawa<sup>1</sup>,  
N. Sasaki<sup>2</sup>, Y. Uraoka<sup>1</sup>, <sup>1</sup>Nara Inst. of Sci. and Technol., Japan, <sup>2</sup>Japan Women's Univ., Japan

— Coffee Break —

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

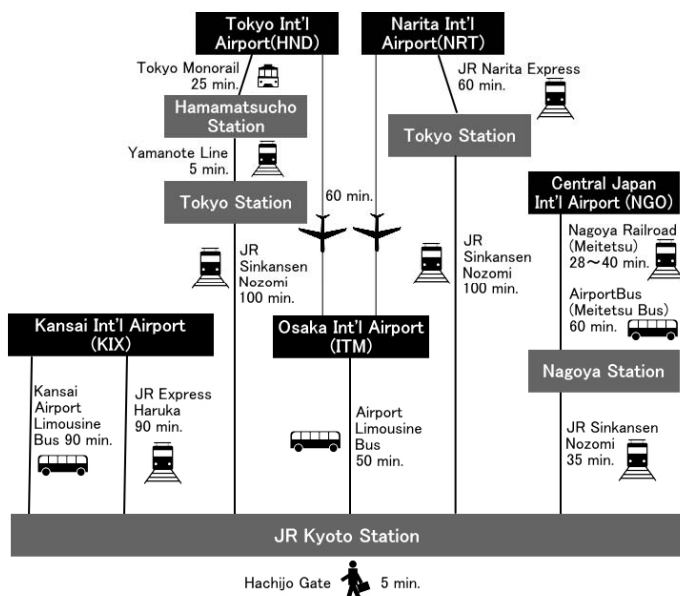
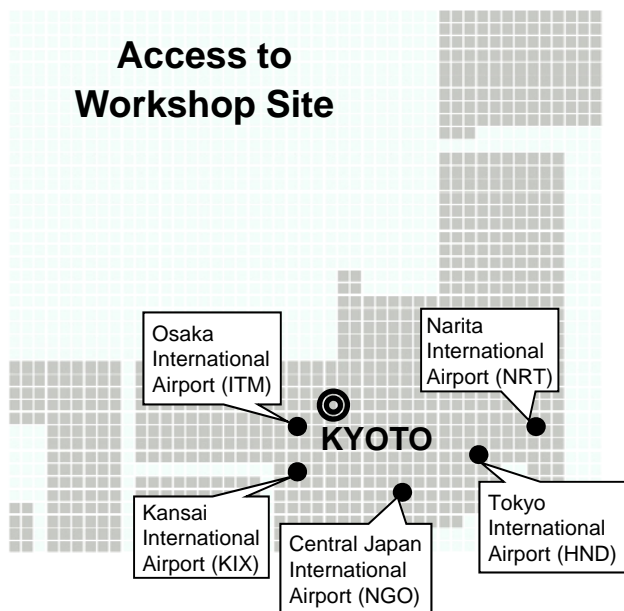
**Chairpersons :** H. J. Kim, *Yonsei Univ., Korea*  
T. Noguchi, *Univ. of the Ryukyus, Japan*

- 14 : 30 (7-1)      Prospects of Oxide TFTs Approaching LTPS  
(Invited)  
K. -S. Park, S. Oh, P. Yun, J. U. Bae, I. B. Kang,  
*LG Display, Korea*
- 14 : 55 (7-2)      Suppression of Positive Gate Bias Temperature  
Stress and Negative Gate Bias Illumination Stress  
Induced Degradations by Fluorine-Passivated  
In-Ga-Zn-O Thin-Film Transistors  
D. Wang<sup>1</sup>, J. Jiang<sup>1,2</sup>, M. Furuta<sup>1</sup>, <sup>1</sup>*Kochi Univ.  
of Technol., Japan*, <sup>2</sup>*Shenyang Univ. of Technol.,  
China*
- 15 : 15 (7-3)      Analysis of Self-Heating Phenomenon in Oxide  
Thin-Film Transistors under Pulsed Bias Voltage  
K. Kise<sup>1</sup>, S. Tomai<sup>2</sup>, H. Yamazaki<sup>1</sup>, S. Urakawa<sup>1</sup>,  
K. Yano<sup>2</sup>, D. Wang<sup>3</sup>, M. Furuta<sup>3</sup>, M. Horita<sup>1</sup>,  
M. Fujii<sup>1</sup>, Y. Ishikawa<sup>1</sup>, Y. Uraoka<sup>1</sup>, <sup>1</sup>*Nara Inst.  
of Sci. and Technol., Japan*, <sup>2</sup>*Idemitsu Kosan,  
Japan*, <sup>3</sup>*Kochi Univ. of Technol., Japan*
- 15 : 35 (7-4)      Controllability of Self-Aligned Four-Terminal  
Planar Embedded Metal Double-Gate Low-  
Temperature Polycrystalline-Silicon Thin-Film  
Transistors on Glass Substrate  
H. Ohsawa, S. Sasaki, A. Hara, *Tohoku Gakuin  
Univ., Japan*

**Closing Remarks** (15 : 55 ~ 16 : 00)

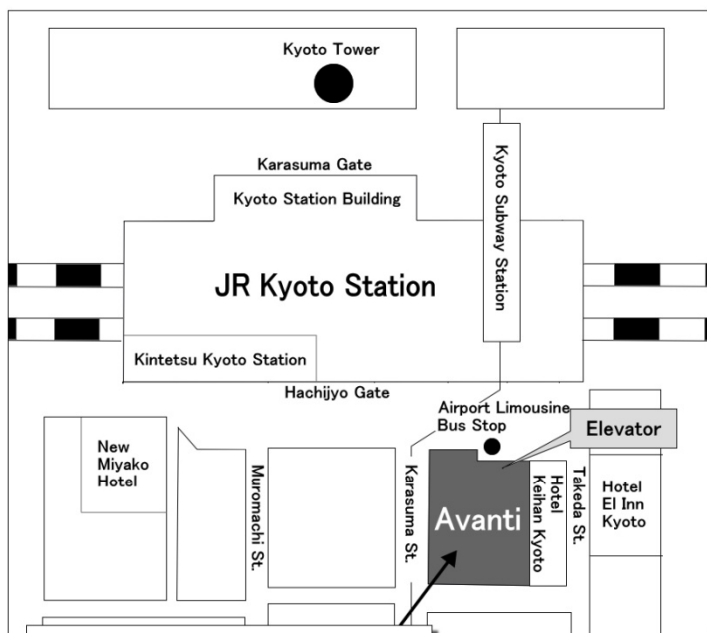
**Author Interviews** (16 : 00 ~ 16 : 30)

# Access to Workshop Site

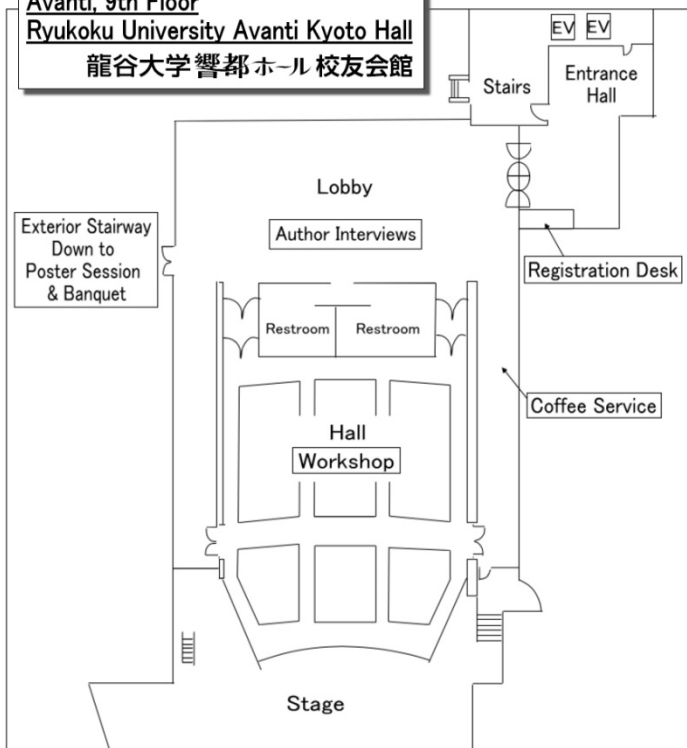


Ryukoku University Avanti Kyoto Hall (Avanti 9th Floor)  
 龍谷大学響都ホール 校友会館





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



**THE TWENTY-SECOND INTERNATIONAL WORKSHOP ON  
ACTIVE-MATRIX FLATPANEL DISPLAYS AND DEVICES  
—TFT TECHNOLOGIES AND FPD MATERIALS —  
(AM-FPD '15)**

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>