ITE

SID
SOCIETY FOR INFORMATION DISPLAY

IDW '15

THE 22ND INTERNATIONAL DISPLAY WORKSHOPS

Special Topics of Interest on

- Oxide-Semiconductor TFT
- Augmented Reality and Virtual Reality
- Lighting Technologies
- Printed Electronics

Workshops on

- LC Science and Technologies (LCT)
- Active Matrix Displays (AMD)
- FPD Manufacturing, Materials and Components (FMC)
- EL Displays and Phosphors (PH)
- Field Emission Displays, CRTs and Plasma Displays (FED)
- OLED Displays and Related Technologies (OLED)
- 3D/Hyper-Realistic Displays and Systems (3D)
- Applied Vision and Human Factors (VHF)
- Projection and Large-Area Displays and Their Components (PRJ)
- Electronic Paper (EP)
- MEMS and Emerging Technologies for Future Displays and Devices (MEET)
- Display Electronic Systems (DES)
- Flexible Electronics (FLX)
- Touch Panels and Input Technologies (INP)

Advance Program

Otsu Prince Hotel
Otsu, Japan
December 9 – 11, 2015

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PROGRAM HIGHLIGHTS

The 22nd International Display Workshops will be held as IDW '15 for encouraging aggressive research and development of display technologies throughout the world and especially in the Asian region. IDW '15 focuses on the following four special topics, which are extremely timely, as well as fourteen active workshops.

Special Topics of Interest on
- Oxide-Semiconductor TFT
- Augmented Reality and Virtual Reality
- Lighting Technologies
- Printed Electronics

Workshops on
- LC Science and Technologies
- Active Matrix Displays
- FPD Manufacturing, Materials and Components
- EL Displays and Phosphors
- Field Emission Displays, CRTs and Plasma Displays
- OLED Displays and Related Technologies
- 3D/Hyper-Realistic Displays and Systems
- Applied Vision and Human Factors
- Projection and Large-Area Displays and Their Components
- Electronic Paper
- MEMS and Emerging Technologies for Future Displays and Devices
- Display Electronic Systems
- Flexible Electronics
- Touch Panels and Input Technologies

The three-day conference will feature 365 papers, including 2 Keynote addresses, 1 Invited address, 101 invited papers and 121 oral presentations, and 140 poster presentations. Following plenary session of Keynote and Invited addresses in the Wednesday morning, presentations will begin and continue in 7 parallel oral sessions through Friday. Poster sessions and author interviews and demonstrations will enable participants to discuss topics in detail. IDW '15 will also present "IDW Best Paper Award" and "IDW Outstanding Poster Paper Award" based on originality and technical significance to information displays. This year, special address will be given by Nobel Laureate, Prof. Hiroshi Amano of Nagoya University, in the Wednesday evening. Exhibits by universities and display industry-related businesses will also be featured from Wednesday to Friday in parallel with workshops. IDW '15 should be of interest to not only researchers and engineers, but also managers of companies and institutions in the display community.

Special Topics of Interest on Oxide-Semiconductor TFT (OXT)

Oxide TFTs are not only one of the most promising technologies in electronic displays but also could become key devices in all general electronics. In this IDW, you can hear many presentations on brand-new technologies, such as material, device structure, fabrication processes, transistor performance, reliability, and applications, from domestic and international university, institute, and companies. No OXT, no success! However, you will be lucky because you will get all the useful information you need once you attend IDW.

Special Topics of Interest on Augmented Reality and Virtual Reality (AR&VR)

In recent years, Augmented Reality and Virtual Reality applications have made substantial progress, benefitting from high-performance display devices, sensors, cameras with tracking capabilities, and computer graphics technologies. The FMC-WS session will present recent trends

in 3D display, e.g., holographic display and retro-reflective imaging. The INP-WS session will cover new topics such as Real-world oriented UI (for making everything interactive) and interactive technologies (for designing everything in the world). The DES-WS session will introduce display techniques for the visualization of Augmented Reality and Virtual Reality. The talks cover various fields and thus can provide you different perspectives on display techniques. The PRJ-WS session focuses on wearable applications in Augmented Reality and Virtual Reality, typified by head-mounted displays. The two-session 3D-WS will highlight 3D and hyper-realistic display systems and floating and omnidirectional display systems. The 3D-WS and VHF-WS have co-organized the session, *Autostereoscopic and Head-Mounted Displays*, that focuses on 3D display-related topics as well as vision and human factors.

Special Topics of Interest on Lighting Technologies (LIT)

The Lighting Technologies of STI will cover all aspects of science and technologies of lighting including LED lighting, OLED lighting, flexible lighting, manufacturing of lighting, lighting materials, device structures for lighting and internal or external efficiency enhancement technologies. A highlight for IDW '15 will be the presentations on innovative high directional LED lighting devices combined with the holographic technology, development of a red phosphor with a narrow line spectra for general lighting and LCD backlights with high brightness and color quality (PH-WS), and OLED lighting technologies with high color rendering, light-outcoupling and color conversion methods (OLED-WS).

Special Topics of Interest on Printed Electronics (PE)

Printing technologies are opening up a new era of electronic devices with their high productivity, low cost, large scale and low environmental-burden fabrication advantages. Printed Electronics, a Special Topics of Interest from the last year, will cover all aspects concerning printed electronics from scientific and technological viewpoints. This year, three Work Shops (AMD, OLED, FLX) will hold oral sessions including solution-processed organic and oxide TFTs (AMD), the printed layer structure with white emission using an all phosphorescent system, soluble emitting material and film formation technologies(OLED), solution-processed superlattice transistors and fluorinated polymer for printed electronics (FLX).

Workshop on LC Science and Technologies (LCT)

The LCT workshop covers topics from fundamental studies to recent developments in LCD technologies and LC materials. The special notes of this year are the five invited presentations related to high resolution LCD technologies, photo alignment technologies, new LC materials for FFS-mode LCDs and new autostereoscopic 3D displays. Moreover, new LC technologies, such as LC lenses, and flexible displays will be presented.

Workshop on Active Matrix Displays (AMD)

The AMD workshop covers Si-TFT, oxide TFT, organic TFT, OLED, and sensors. Recent paper presentations tend to focus on oxide TFT, which may be expected to play a role in applications for higher definition LC and OLED displays than 8k4k or 800 ppi. We highlight the oxide TFT as a special topic of interest (STI) with five dedicated sessions covering a wide area from materials, physics, devices, and processes to applications. Furthermore, we have prepared one session on printed electronics STI. We look forward to your participation!

Workshop on FPD Manufacturing, Materials and Components (FMC)

The FMC workshop covers recent developments and achievements in the fields of flat panel display technologies that include materials, components, display panel manufacturing and measurement. The oral presentations contain more than 16 papers of which 8 are invited papers.

In addition, more than 16 posters will be presented. Since display optics is a field with large number of innovations, a session is devoted to the issues and the developments in this field. Furthermore papers related to visible light communication, materials for visible light sources, materials for 3D holograms, medical display issues and innovations, optical film innovations, liquid crystal for high performance organic field effect transistors, and viewing angle control film will be presented. The FMC WS is supporting the AR/VR session devoted to special topics of interests, in which the recent trends in 3D will be presented.

Workshop on EL Displays and Phosphors (PH)
This workshop presents the latest achievements in devices and phosphors for emissive displays, general lighting and liquid-crystal backlighting. Invited talks will present emerging technologies such as high-efficiency phosphors, quantum dots, lighting source and backlights.

Workshop on Field Emission Displays, CRTs and Plasma Displays (FED)
This workshop thoroughly covers the fields of FED, CRT and PDP technologies. Recent progress in imaging devices and displays with field emitter arrays will be discussed. The invited talk will present a new promising electron source, a single-atom electron emission source for applications to electron microscopes. Additionally, fabrication processes, field emission characteristics and mechanisms, and applications to imaging devices under extreme conditions will be discussed. Since the invention of plasma displays in 1964, there has been much progress. Now, the PDP display technologies have stepped up to explore medical and biological applications. The characteristics of a flexible light source using PDP technologies will be presented.

Workshop on OLED Displays and Related Technologies (OLED)
The OLED workshop covers all aspects of the science and technologies of OLED and other organic devices, ranging from material research, basic device physics to display including backplane technologies and other applications. The oral and poster sessions will cover OLED device technologies including Printed Electronics (PE) as STI, OLED lighting technologies (LIT), OLED evaluation technologies and materials. Recent progress such as R to R process technology, high performance OLED lighting, molecular orientation and thermally activated delayed fluorescent (TADF), and materials etc. will be reported.

Workshop on 3D/Hyper-Realistic Displays and Systems (3D)
This workshop focuses on recent progress in image capturing, processing and display technologies, high-quality image coding and transmission technologies, AR/VR technologies, and visual evaluation for 3D and hyper-realistic display systems. It covers dual-/multiview stereoscopic image, autostereoscopic display, 2D/3D image conversion, holography and holographic elements, integral photography, light field processing and analysis, volumetric image, floating images, omnidirectional images, immersive visualization systems, depth and shape estimation, 3D scanners and printers, multi-/hyperspectral imaging, multiprimary and hyperspectral displays, crosstalk evaluation, visual depth and material perception, image coding and transmission, standardization, new optical components, and more for 3D/hyper-reality technologies. This year, some novel technologies will be presented as invited papers, such as 240 fps videos, super-multiview displays, floating displays and holograms. This workshop is intended to provide the audience with a good opportunity to understand the latest trends in these fields. We will also highlight AR/VR technology as a special topic of interest.

Workshop on Applied Vision and Human Factors (VHF)
The VHF workshop covers all topics on vision, human factors, and image quality relating to information displays. The oral and poster sessions

include lively discussions on the latest topics ranging from fundamental theories to applications. We have five VHF oral sessions on Display Metrology, Display Image Quality, Human Factors, Color and Vision, and Color Rendering, in addition to a VHF poster session. We also have a joint session with a 3D workshop on the theme of AR (Augmented Reality), and promising groundbreaking interdisciplinary discussions. Four invited talks will be given in the oral sessions, concerning metric for relative display gamut size, aging of eye and display design, observer metamerism in displays, and the color rendering index required for UHDTV production.

Workshop on Projection and Large-Area Displays and Their Components (PRJ)

The PRJ workshop covers the latest wearable applications, vehicle display technologies, head light, solid-state light sources, holograms, short throw optics etc., projection mapping, Augmented Reality (virtual reality), 3D measurement (Sensing and ADAS: Advanced Driving Assistant Systems) and all the projection technologies. This year, our session will focus on head mounted displays, wearable-related technologies, laser light sources, projection devices, speckle reduction, and dressed photon technology. Recent studies of advanced technologies such as automotive solid state light, lighting (ADB: Adaptive Driving Beam), virtual imaging for wearable, medical applications and the latest coherent LIDAR systems will be featured. There will be 26 presentations, 22-oral and 4-poster, including 9 invited presentations in total.

Workshop on Electronic Paper (EP)

This workshop focuses on current topics in electronic paper including rewritable paper and flexible displays. Newly developed e-Paper technologies are now eagerly sought for emerging applications such as e-Books, e-Notes, electronic shelf labels, signage, and smart window. Various novel technologies such as electrophoretic, electro/thermo/photo/gaso chromics will be presented. There will also be reports on promising applications for e-Paper in offices. Systems, devices, materials, applications, and usability of e-Paper are expected to be enthusiastically discussed.

Workshop on MEMS and Emerging Technologies for Future Displays and Devices (MEET)

The MEET workshop is unique in covering all aspects of MEMS, nanotechnologies and emerging technologies concerning future displays, imaging devices, and emerging electron devices. It seeks to broaden the horizon of display and imaging technologies into cutting-edge technologies. Research areas such as materials, basic physics and fabrication processes are included. Among all the MEMS and display conferences in the world, this is the only opportunity for MEMS and cutting-edge technology researchers to gather and discuss such devices. Authorities from top research institutions around the world in this field have been invited. Invited speakers are from MIT (QD Vision), Ecole Polytechnique, CEA-LETI, Brunel Univ. Kyung Hee Univ. 3M, Nano Photonica, Merck, Ritsumeikan Univ. Tohoku Univ. and Keio Univ.. Together with contributed papers with high-quality content, this workshop is aimed at participants who wish to open up new fields in displays, imaging devices and emerging devices.

Workshop on Display Electronic Systems (DES)

This workshop covers all aspects of display electronics and systems in relation to video data processing, interface technologies, and cooperative operations between display components such as cells and backlights and sensors. This year, we will have 20 papers including 10 invited talks and five poster presentations (excluding late-news). Sessions related to the transparent display technologies, vehicle display technologies, and the driving/low-power technologies for LCD/OLED are planned. We will

also highlight various visualization technologies related to AR/VR as a STI.

Workshop on Flexible Electronics (FLX)
FLX-WS is focusing on advanced technologies for flexible electronics including displays, wearable sensors, and IoT technologies, which are composed of a wide range of fields from materials science to practical applications. The sessions cover all aspects of the hottest flexible devices and material technologies including TFT fabrication, substrates, encapsulation, printing processes and evaluation techniques.

Workshop on Touch Panels and Input Technologies (INP)
Interface technologies such as touch panels and interactive technologies are the stars of the session. AR/Interactive systems such as haptics and AR are special topics of INP. Computer vision and natural interface technologies are still important research topics of INP. This year, new topics will be presented: Real-world oriented UI which makes everything interactive and interactive technologies to design everything in the real world are special topics. INP papers will open a new window in displays and interactive technologies, not only for devices but also for systems, making them essential viewing.

IDW Best Paper Award and IDW Outstanding Poster Paper Award
IDW will present “IDW Best Paper Award” and “IDW Outstanding Poster Paper Award”. The award committee of IDW will select the most outstanding papers from those presented at IDW ’15. The award winners will be announced on the IDW website and given a plaque after the conference.

Innovative Demonstration Session
Innovative Demonstration Session will be held on December 10 at Ohmi 5. IDW provides the opportunity for an interdisciplinary technical demonstration/ discussion in a larger space, more preparation and demonstration time than in the “Author Interviews and Demonstrations”. Demonstration Award will be awarded to the demonstration that has the biggest impact on the audience.

Special Address
Nobel laureate, Prof. Hiroshi Amano of Nagoya University, will give a special address at IDW ’15 on the theme, "Lighting the Earth by LEDs".
Prof. Amano was awarded the 2014 Nobel Prize in Physics for the invention of blue light-emitting diodes. He will present his address at 18:50 on Wednesday, December 9 in Ohmi 1.

Exhibition
The IDW ’15 Exhibition, which will be held from December 9 through December 11, covers materials, components, manufacturing and measuring equipment, software systems and other related products for display devices. Please join in and enjoy discussions at exhibitors’ booths (Lobby, 2F).

December 9 (Wed.) 12:00 – 17:00
December 10 (Thu.) 10:00 – 18:00
December 11 (Fri.) 10:00 – 14:00

GENERAL INFORMATION

SPONSORSHIP
IDW '15 is sponsored by the Institute of Image Information and Television Engineers (ITE) and the Society for Information Display (SID).

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ON-SITE SECRETARIAT
Telephone and fax machines for IDW '15 use will be temporarily set up in the secretariat room (Room Eizansumire 1) at Otsu Prince Hotel (December 9-11). Phone/Fax: +81-77-521-1380

RECEPTION
A buffet style reception will be held on December 9 from 18:50 to 20:50 at the Prince Hall (3F) in Otsu Prince Hotel. As the number of tickets is limited, you are urged to make an advance reservation through the registration website.

EVENING GET-TOGETHER WITH WINE
A get-together will be held on December 8 from 18:00 to 20:00 at Hiei (2F) in Otsu Prince Hotel. Wine (sponsored by Merck Ltd., Japan) will be served to participants in a relaxed atmosphere for networking.

REGISTRATION
Registration is available in advance and also on-site. However, advance registration is strongly recommended to speed up your registration at the conference site.

Registration Fees
The registration fee for IDW '15 includes admission to the conference and a USB Flash Drive of the proceedings. Detailed information will be announced on the website.

	Until Oct. 30	On and After Oct. 31
Individual Member (ITE/SID/ASO*)	¥ 40,000	¥ 50,000
Non-Member**	¥ 50,000	¥ 60,000
Student***	¥ 13,000	¥ 15,000
Life Member of ITE/SID	¥ 13,000	¥ 15,000
Reception	¥ 8,000	¥ 10,000

*ASO: Academic Supporting Organizations
(See p.14 as well as "Supporting Organizations and Sponsors" at the end of each workshop section.)
**Non-Member: If you intend to join either ITE or SID, the one year membership fee will be subsidized by IDW '15 committee.
***Photocopy of student ID is required.

Please note that the payment of reduced registration fee is accepted until October 30. The full fee will be charged for payments made on and after October 31. Also note that the number of reception tickets to register on site is limited.

Proceedings Data at the Conference Site
Proceeding data can be accessed from the web-server via the wireless network only in the Free Wi-Fi Area at the conference site.
Additional proceedings (USB Flash Drive)

At the conference site	¥ 8,000
Airmail after the conference	¥ 12,000
Domestic mail after the conference	¥ 10,000

Payment
Three ways are provided for registration.

(1) e-Registration
Access the following URL.
http://www.idw.or.jp/regist.html
e-Registration will be accepted until November 27, 2015.

(2) Mail or Fax Registration
Complete the registration form (download from the website) and send it to the secretariat shown below together with the proof of payment no later than November 27, 2015.

IDW '15 Secretariat
c/o Bilingual Group Ltd.
3-3-6 Kudan Minami, Chiyoda-ku, Tokyo 102-0074, Japan
Phone: +81-3-3263-1345 Fax: +81-3-3263-1264
E-mail: idw@idw.or.jp

The registration fee should be paid by one of the following methods.

1. Credit Card (VISA, MasterCard, JCB, AMEX or Diners)
2. Bank Transfer to:

Bank:	Bank of Tokyo-Mitsubishi UFJ (Swift Code: BOTKJPJT)
Branch:	Ichigaya Branch (Branch No. 14)
Account No.:	0167640 (Ordinary Account)
Account:	IDW

Please attach a copy of the bank receipt to the registration form to avoid any confusion. Please note that **the remittance charges, including that of Bank of Tokyo Mitsubishi UFJ, should be paid by the payer**.

All above payments should be made in **JAPANESE YEN**.
Also, please note that personal and traveler's checks are not accepted.

(3) On-site Registration
Conference registration desk will open:

December	8 (Tue.)	17:00 – 20:00
December	9 (Wed.)	8:00 – 18:00
December	10 (Thu.)	8:00 – 18:00
December	11 (Fri.)	8:00 – 13:00

On-site registration fee will be payable by:

1. Cash (JAPANESE YEN only)
2. Credit Card (VISA, MasterCard, JCB, AMEX, China Union Pay)

Bank transfer, bank checks, or personal/traveler's checks are not accepted.

Cancellation Policy
Until **October 30**, cancellation is accepted by writing to IDW '15 Secretariat to get refunds for registration and reception. For cancellations received **on and after October 31 or no-shows, refunds will not be made**. However, after IDW '15 closes, a USB Flash Drive of the proceedings will be sent to the registrants who have paid the registration fees. If it becomes difficult to hold IDW '15 due to the outbreak of infectious diseases and other unavoidable factors, we will substitute the IDW with the mail delivery of the IDW '15 proceedings at a later date to all those who have registered and completed payment.

INQUIRIES
IDW '15 Secretariat
c/o Bilingual Group Ltd.
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E-mail: idw@idw.or.jp

ACADEMIC SUPPORTING ORGANIZATIONS(ASO)

- The Chemical Society of Japan
- The Electrochemical Society of Japan
- The Illuminating Engineering Institute of Japan
- The Imaging Society of Japan
- The Institute of Electrical Engineers of Japan
- The Institute of Electronics, Information and Communication Engineers
- The Institute of Image Electronics Engineers of Japan
- International Electrotechnical Commission
- The Japan Ergonomics Society
- The Japan Society of Applied Physics
- The Japanese Liquid Crystal Society
- The Optical Society of Japan
- The Society of Automotive Engineers of Japan
- The Society of Polymer Science, Japan
- The Virtual Reality Society of Japan

FUNDS

- Shiga Prefecture
- JSPS KAKENHI Grant Number 15HP0304

For final updated information, please visit our website, http://www.idw.or.jp/

IDW/AD ’16

The 23rd International Display Workshops
in conjunction with Asia Display 2016

Dec. 7 – 9, 2016

Fukuoka Convention Center
Fukuoka, Japan

http://www.idw.or.jp

TRAVEL INFORMATION

ACCOMMODATIONS
JTB Western Japan, Corp. will handle arrangements for your hotel reservations.

It will be very hard to book a hotel in Otsu and Kyoto in December due to the peak tourist season. So we recommend you make reservations in advance at the hotels recommended by IDW.

Hotel reservations can be made at the IDW official website.
http://www.idw.or.jp/accommodation.html

Hotel list and the rates are available on the Pullout of this Advance Program.

JTB Western Japan, Corp.
Communication Division, MICE Center, IDW '15 Desk

Phone: +81-6-6252-2861 Fax: +81-6-6252-2862
Office Hours: 9:30-17:30 (Weekdays only)
E-mail: westec_op6@west.jtb.jp

There will be an on-site travel information desk during the conference period to handle arrangements for transportations.

VISAS
Visitors from countries whose citizens must have visas should apply to Japanese consular office or diplomatic mission in their respective countries. For further details, please contact your travel agency or the local consular office in your country.
Attention: For some countries' citizens, official documents prepared by the secretariat will be needed. Please access the IDW website for applications.
http://www.idw.or.jp/visa.html

JAPAN RAIL PASS AND JR WEST PASS
Japan Railway (JR) provides the following economical passes. They should be purchased before you leave your country. Please contact your travel agency. Visit following sites for the details.
(1) The JAPAN RAIL PASS is the most economical way to travel throughout Japan by rail and JR buses.
(2) The JR WEST PASS is an economical and flexible rail pass to travel around Western Japan.
Japan Rail Pass: http://www.japanrailpass.net/en/index.html
JR West Pass: http://www.westjr.co.jp/global/en/travel-information/pass/shop/

CLIMATE
The average temperature in Otsu during the conference should be around 10°C (50°F) in the daytime and 3°C (37°F) at night.

OTSU CITY

Otsu City is easily accessible from Kyoto Station, only 9 minutes away by train. It is located on the southern edge of Biwako, which with a surface area of 672 km^2 is the largest lake in Japan. It is the capital of Shiga Prefecture and is rich in history and natural beauty. About 1,300 years ago, it was the capital of Japan for a brief period of time. At the end of the 8th century, Kyoto became the heart of Japan, and Otsu prospered as a gateway to Kyoto for both land and water transportation systems, while also becoming a center for Buddhism.

Now it is a tourist center and a port for excursion boats on Biwako. The views from Otsu Prince Hotel are magnificent. Around twilight, Biwako gradually changes its colors and the city starts to light up along the shore. The city's industrial products include electrical appliances, textiles, precision instruments, computer components, and machinery.

PLACES OF INTEREST

Biwako (Lake Biwa)

Biwako occupies 1/6 of Shiga Prefecture. More than 450 rivers flow into the lake and there is only one natural outlet, the Seta River.

The lake supplies water to some 14 million residents around and downstream of the lake including Osaka, Kyoto and Kobe Cities.

There are a number of historic sites, hot springs, and other attractive tourist spots around the lake. Several types of boat cruises start from Nagisa-Koen Park as well as from Otsu Prince Hotel.

Enryakuji Temple

The temple was founded in 788 AD by the Buddhist Priest Saicho (767–822) to protect the former capital of Kyoto from evil spirits from the northeast. It was (and still is) the headquarters of the Tendai sect, the Buddhist sect that was popular among the aristocracy of the time and served as the foundation for a number of later sects. At the peak of its power, Enryakuji Temple was a huge complex of 3,000 subtemples.

A powerful army of warrior monks occasionally engaged in power struggles with other monasteries and political leaders. In 1571, warlord Oda Nobunaga ended this Buddhist militancy by attacking and razing the huge temple complex on Mt. Hiei. Currently, there are 200 temple buildings and its forest environment has great scenic charm. The temple itself is in an excellent state of preservation and the main buildings are National Treasures. Enryakuji Temple was registered as a UNESCO World Cultural Heritage site in 1994. It is located 10 minutes on foot from Enryakuji Station on the Hieizan-Sakamoto Cablecar Line. It takes about 25 minutes to get to JR Hieizan Sakamoto station from JR Otsu station.

Miidera (Onjoji) Temple

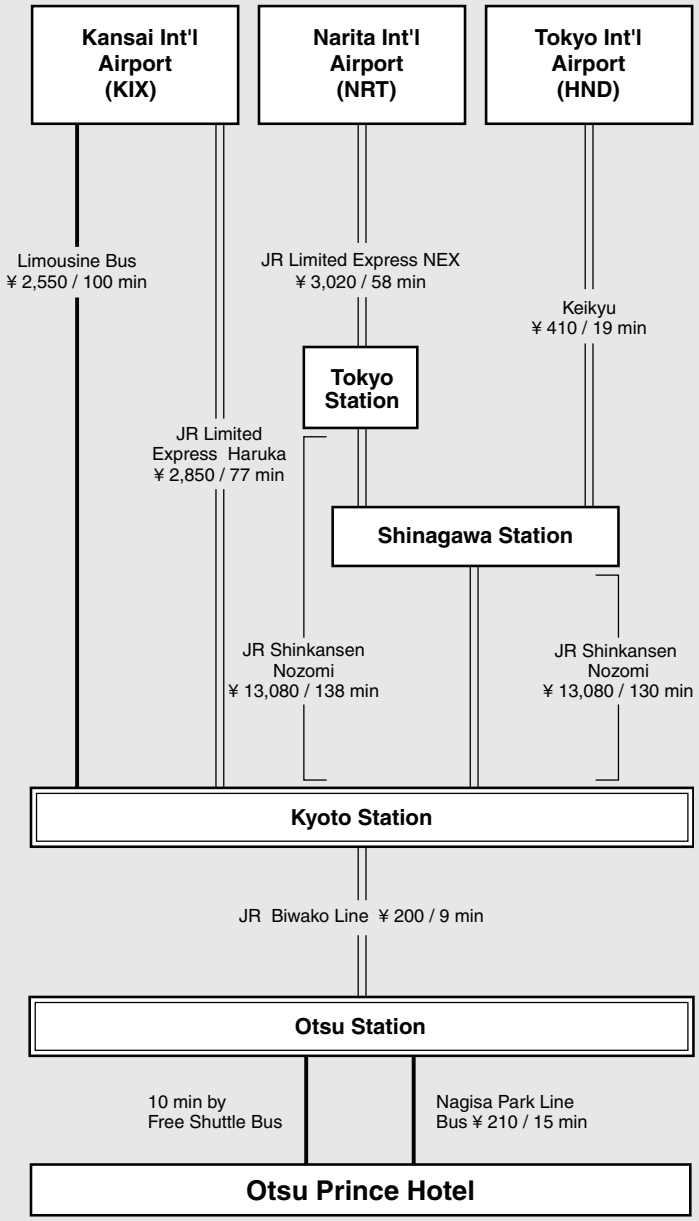
Located at the foot of Mt. Hiei, this temple was founded in 686 AD by Emperor Tenmu in honor and memory of his brother. The name "Miidera", literally means "Temple of Three Wells". The name derives from the springs at the temple which were used for the ritual bathing of newborns.

The Evening Bell of Miidera is one of the well-known Omi Hakkei (Best Eight Views of Omi). Miidera is also famous for the color of its autumn leaves and is an excellent place to enjoy beautiful Japanese autumn scenery until early December.

Take the Keihan Bus from JR Otsu Station to Miidera bus-stop, or take the Keihan Ishiyama Sakamoto Line to Miidera. The temple is 10 minutes on foot from Miidera station.

More information is available on
http://www.pref.shiga.lg.jp/multilingual/english/index.html
http://www.jnto.go.jp/eng/location/regional/shiga

Access to Conference Site



(as of July, 2015)

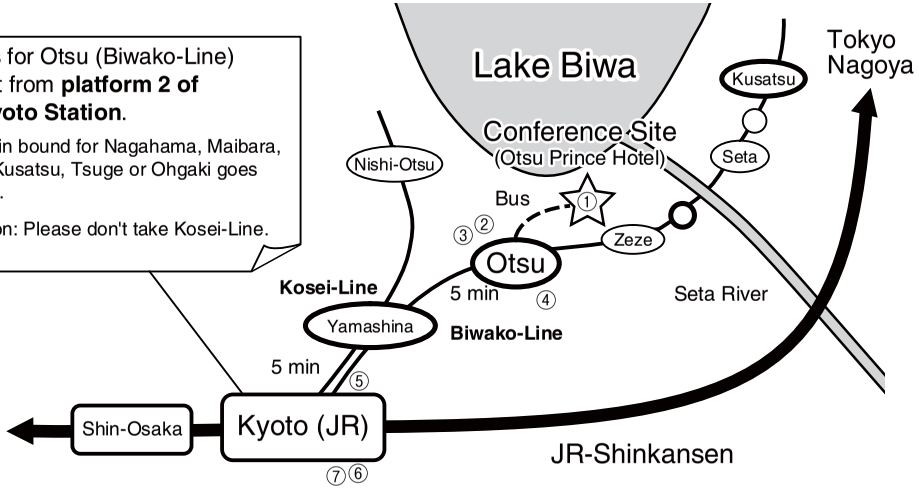
*Information of this page may be changed. Please confirm the details in each company.

Access from Kyoto and Hotel Location

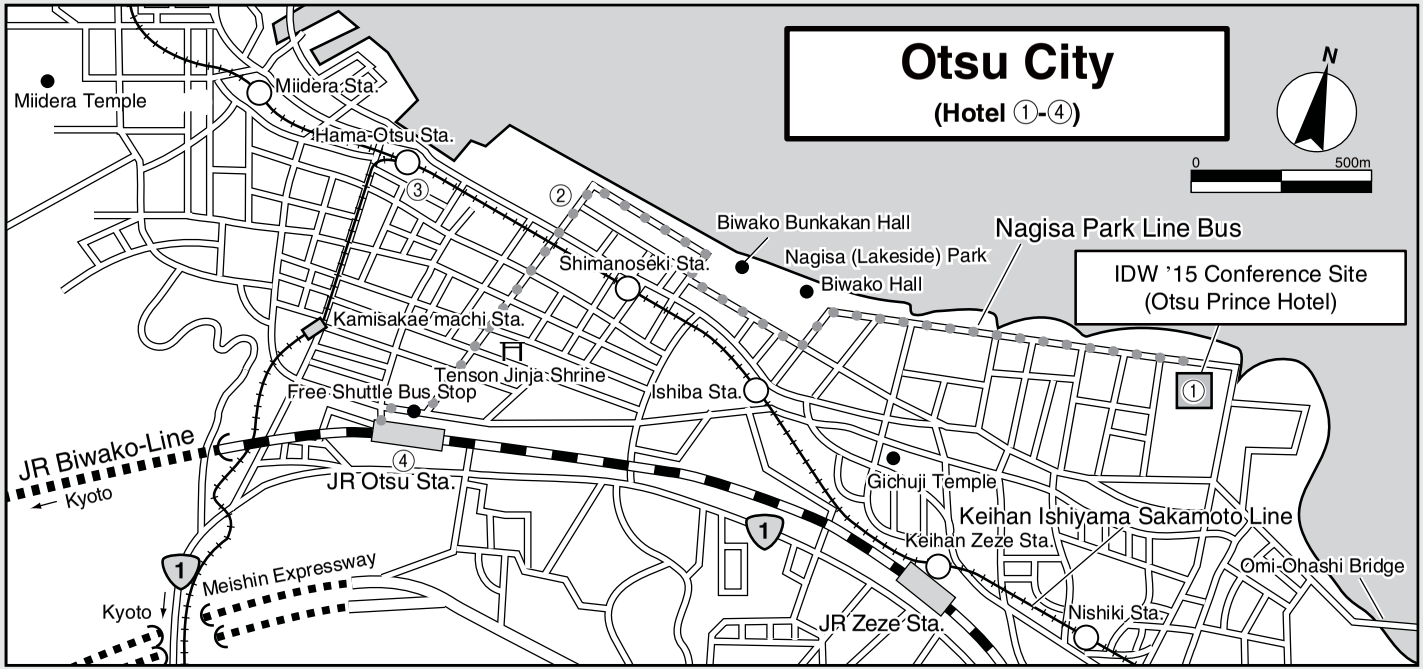
Trains for Otsu (Biwako-Line) depart from **platform 2 of JR Kyoto Station**.

Any train bound for Nagahama, Maibara, Yasu, Kusatsu, Tsuge or Ohgaki goes to Otsu.

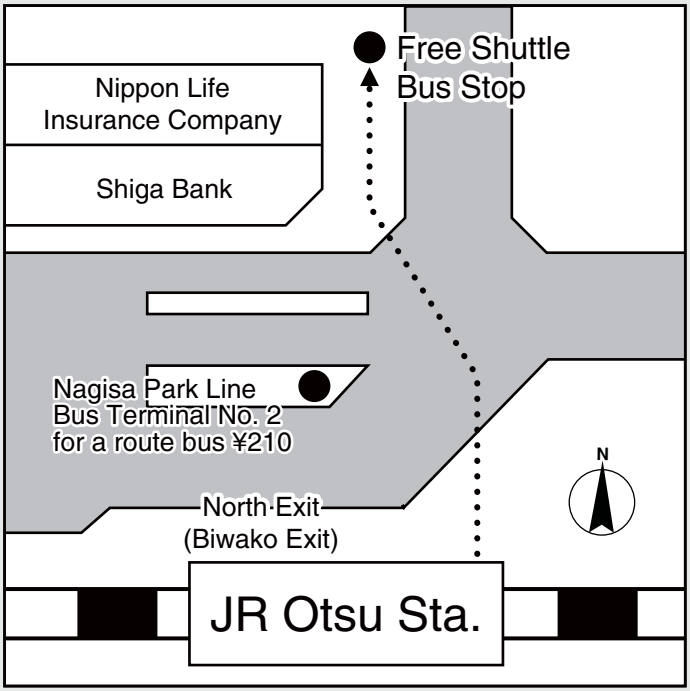
Attention: Please don't take Kosei-Line.



① Otsu Prince Hotel
Phone: +81-77-521-1111
② BIWAKO HOTEL
Phone: +81-77-524-7111
③ Hotel Blue Lake Ohtsu
Phone: +81-77-524-0200
④ Hotel Tetora Otsu. Kyoto
Phone: +81-77-527-6711
⑤ HOTEL HOKKE CLUB KYOTO
Phone: +81-75-361-1251
⑥ HOTEL KEIHAN KYOTO
Phone: +81-75-661-0321
⑦ Ibis Styles Kyoto Station
Phone: +81-75-693-8444


Otsu City
(Hotel ①-④)
N
0
500m
Miidera Temple
Miidera Sta.
Hama-Otsu Sta.
③
②
Biwako Bunkakan Hall
Nagisa Park Line Bus
Shimanoseki Sta.
Nagisa (Lakeside) Park
Biwako Hall
IDW '15 Conference Site
(Otsu Prince Hotel)
Kamisakae-machi Sta.
Tenson Jinja Shrine
Free Shuttle Bus Stop
Ishiba Sta.
①
JR Biwako-Line
Kyoto
④
JR Otsu Sta.
Gichuji Temple
Keihan Ishiyama Sakamoto Line
Keihan Zeze Sta.
1
Meishin Expressway
Kyoto
Omi-Ohashi Bridge
JR Zeze Sta.
Nishiki Sta.

Otsu Station



SID Display Week 2016

May 22 – 27, 2016

Moscone Convention Center

San Francisco, CA, USA

Plenary Sessions

Wednesday, December 9

9:30 - 9:50 **Ohmi 1**

Opening

Master of Ceremony: K. Ishii, Executive Chair, IDW

Opening Remarks
9:30

H. Okumura, General Chair, IDW
A. Ghosh, President, SID
M. Doi, President, ITE
M. Kimura, Program Chair, IDW

9:50 - 11:10 **Ohmi 1**

Keynote Addresses

Chair: M. Kimura, Program Chair, IDW
Co-Chair: H. Okumura, General Chair, IDW

Keynote Address - 1
9:50

Interactive Contents and Interface Technologies

Y. Kitamura

Tohoku Univ., Japan

Keynote Address - 2
10:30

Global Business for Mobile Device

J. Chu

Huawei Device, China

11:10 - 11:50 **Ohmi 1**

Invited Address

Chair: M. Kimura, Program Chair, IDW
Co-Chair: H. Okumura, General Chair, IDW

Invited Address - 1
11:10

Information Flow of Things: A Framework for Distributed, Scalable and Realtime Processing of IoT Data Streams

K. Yasumoto

NAIST, Japan

----- Lunch -----

17:20 - 18:20 **Ohmi 1**

Special Address

Chair: M. Kimura, Program Chair, IDW
Co-Chair: Y. Nakanishi, Shizuoka Univ., Japan

Special Address - 1
17:20

Lighting the Earth by LEDs

H. Amano
Nagoya Univ., Japan

IDW '15 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, Dec. 8, 2015
Ohmi 10 (2F)
Otsu Prince Hotel

Detailed information is available on
http://www.sid-japan.org/

EXHIBITION

12:00 – 17:00 Wednesday, Dec. 9
10:00 – 18:00 Thursday, Dec. 10
10:00 – 14:00 Friday, Dec. 11

Lobby (2F)
Otsu Prince Hotel

Free admission with your registration name tag

Special Topics of Interest on Oxide-Semiconductor TFT

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

***Poster* AMDp1: Oxide TFT**

AMDp1 - 1 **Stress Durability of CAAC-IGZO TFTs**

R. Honda[*], H. Baba[*], A. Suzuki[*], M. Hayakawa[**], N. Ishihara[*], H. Kanemura[**], Y. Shima[**], S. Saito[**], S. Matsuda[*], K. Dairiki[*], J. Koezuka[**], S. Yamazaki[,**]*

[*]Semiconductor Energy Lab., Japan
[**]Advanced Film Device, Japan

AMDp1 - 2 **Correlation Among Crystal Morphology, Surface Shape, and Oxygen Vacancy Formations in In-Ga-Zn Oxide**

M. Nakashima, T. Hiramatsu, E. Kikuchi, Y. Yamada, M. Oota, K. Dairiki, S. Yamazaki

Semiconductor Energy Lab., Japan

AMDp1 - 3 **Enhancement of Field-Effect Mobility in a-IGZTO TFTs with a BCE Structure Using Floating Metal Electrodes**

M. Ochi, S. Morita, H. Goto, T. Kugimiya, M. Kanamaru[*], M. N. Fujii[**], Y. Uraoka[**]

Kobe Steel, Japan
[*]Kobelco Res. Inst., Japan
[**]NAIST, Japan

AMDp1 - 4 **Suppression of Photo-Bias Instability of Transparent Amorphous Indium Oxide Thin Film Transistors by in situ Nitrogen Doping**

C.-H. Chang, C.-C. Chang, P.-T. Liu, Y.-C. Tsai[*]

Nat. Chiao Tung Univ., Taiwan
[*]Appl. Materials, Taiwan

AMDp1 - 5 **Related a-IGZO Oxide Structure Analysis for Reliability Improvement**

W.-T. Chen, K.-J. Chang, W.-P. Chen, C.-C. Nien, K.-K. Chen, H.-H. Lu, Y.-H. Lin

AU Optronics, Taiwan

AMDp1 - 6 **Simple Current-Biased Voltage-Programmed a-IGZO Pixel Circuit for High-Resolution AMOLED Displays**

F.-H. Chen, Y.-T. Liu, C.-M. Lu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 7 **Development of High Performance AM-OLED Display Using IGZO TFT**

X.-W. Lv, Y.-H. Meng, C.-Y. Su, W.-H. Li, L.-Q. Shi, H.-J. Zhang, W. Shi, S.-M. Ge, T. Sun, C.-Y. Lee, A. Lien[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

AMDp1 - 8 **Investigation of Stacking Multi-Layers Oxide Thin Film Transistors Fabricated by Sol-Gel Process**

C. Y. Huang, C. E. Tsay, Y. W. Wang

Nat. Changhua Univ. of Education, Taiwan

AMDp1 - 9 **High Reliable Indium Gallium Zinc Oxide Thin Film Transistor under Negative Bias Illumination Stress**

J. Liu, J. Li, J. S. Qin, L. Jacky, L. Can

Shenzhen China Star Optoelect. Tech., China

AMDp1 - 10 **Characteristics Improvements by Adopting Multi-Active Layer Structure in a-IGZO Thin Film Transistors**

D. Xu, X. Duan, M. K. Baek, Y. Youn, C. Che, S. Lee

Hefei BOE Optoelect. Tech., China

AMDp1 - 11 **Electrical Properties of a-IGZO TFT with Various Annealing Temperature**

Y.-H. Hsieh, M.-C. Chen, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 12 **Comparison of Electrical Performance for a-IGZO Based Single Gate and Dual Gate Driving TFT Using TCAD**

M. M. Billah, M. D. H. Chowdhury, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 13 **Pixel Circuit Employing Simple Operation for High-Resolution AMOLED Displays**

W.-C. Chiu, Y.-T. Liu, C.-M. Lu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 14 **Analysis and Improvement of IGZO TFT-LCD Reliability**

W. Qin, J. Y. Zhao, W. P. Teng, L. Wang, J. I. Ryu, J. M. Jun

BOE Tech. Group, China

AMDp1 - 15 **Investigation on Ambient Degradation of Amorphous InGaZnO Thin Film Transistors in an Unsealed Chamber**

J. Xu, Q. Wu, L. Xu, H. Xie, S. Li[*], C.-Y. Lee[*], A. Lien[**], C. Dong

Shanghai Jiao Tong Univ., China
[*]Shenzhen China Star Optoelect. Tech., China
[**]TCL Corporate Res., China

----- Lunch -----

13:40 - 15:40 **Ohmi 6**

Poster FLXp2: Flexible Electronics 2

FLXp2 - 1 **The Instability Change of Flexible a-IGZO TFTs Under Different Mechanical Stress**

H.-J. Jeong, K.-C. Ok, H.-M. Lee, J.-S. Park

Hanyang Univ., Korea

----- Break -----

16:00 - 17:10 **Ohmi 1**

AMD1: Oxide TFT: Crystalline Oxide

Chair: H. Kumomi, Tokyo Inst. of Tech., Japan
Co-Chair: M. Hiramatsu, Japan Display, Japan

AMD1 - 1: 16:00 ***Invited*** **CAAC-Oxide Semiconductor Material and Its Applications**

M. Tsubuku, S. Yamazaki

Semiconductor Energy Lab., Japan

AMD1 - 2: 16:25 ***Invited*** **Change in Structure and TFT Performances of IZO, IGO and IGZO Films by Crystallization**

A. Suko, J. Jia, S. Nakamura, Y. Shigesato

Aoyama Gakuin Univ., Japan

AMD1 - 3 16:50 **Improvement in Characteristics, Reliability and Dispersion of CAAC-IGZO FETs with Surrounded Channel Structure**

M. Hayakawa[*], S. Matsuda[**], S. Saito[*], Y. Shima[*], D. Matsubayashi[**], M. Dobashi[*], K. Tsutsui[**], R. Honda[**], J. Koezuka[*], K. Okazaki[*], S. Yamazaki[,**]*

[*]Advanced Film Device, Japan
[**]Semiconductor Energy Lab., Japan

----- Break -----

17:40 - 19:10 **Ohmi 1**

AMD2: High Resolution Displays Using LTPS and Oxide TFTs

Chair: P. Heremans, imec, Belgium
Co-Chair: H. Hamada, Kinki Univ., Japan

AMD2 - 1: 17:40 ***Invited*** **2K4K 550-ppi In-Cell Touch LTPS TFT-LCD**

M. Tada, T. Nakamura, H. Kimura

Japan Display, Japan

AMD2 - 2 18:05 **Novel Integrated Gate Driver with Coplanar a-IGZO TFTs for AMOLED Displays**

W.-S. Choi, K.-T. Kim, M.-G. Kang, K.-I. Chun, B.-K. Cho, S.-H. Park, H.-N. Cho, D.-H. Kim, Y.-H. Jang, J.-Y. Bae, K.-S. Park, I.-B Kang

LG Display, Korea

AMD2 - 3 18:25 **Development of 32-in. 8k4k LCD with Oxide Semiconductor and GOA Technology**

W. Meng, Y. Zhao, Q. Gan, F. Zhao, C.-K. Zhang, C. Chiu, G. Liu, L. Shi, C. Su, C. Dai, L. Zeng, T. Lee, C. -Y. Lee, A. Lien[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

AMD2 - 4: 18:45 ***Invited*** **Over 800-ppi Liquid Crystal Display with High Aperture Ratio Using IGZO Platform**

S. Uchida, N. Ueda, Y. Ogawa, K. Okada, A. Oda, S. Katoh, K. Yamamoto, K. Yamamoto, T. Matsuo, H. Kawamori

Sharp, Japan

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:30 **Ohmi 1**

AMD3: Oxide TFT: Reliability

Chair: Y. Yamamoto, Japan
Co-Chair: K. Takatori, NLT Techs., Japan

AMD3 - 1: 9:00 ***Invited*** **Reliability of Oxide TFTs**

B. S. Bae, S. M. Shin, K. M. Yu, E.-J. Yun

Hoseo Univ., Korea

AMD3 - 2: 9:25 ***Invited*** **Highly Reliable Oxide Thin Film Transistors for Flexible Devices**

Y. Uraoka, M. Fujii, Y. Ishikawa

NAIST, Japan

AMD3 - 3 9:50 **Electrical Characteristics and Stability of Bottom Gate a-InGaZnO TFTs on Flexible Substrate**

H.-W. Li, C.-F. Yang, C.-P. Chang, C.-H. Tsai, H.-H. Lu

AU Optronics, Taiwan

AMD3 - 4 10:10 **Novel BTS Model and Methodology for AC-Stress-Induced Long-Term Reliability in Thin-Film Transistors**

J. Jang, K. Jeon, J. Yang, J. Park, M. Seo, K. Jeong, K. Kim

Samsung Display, Korea

----- Break -----

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

13:30 - 15:00 **Ohmi 1**

AMD5: Oxide TFT: Applications

Chair: Y. Uraoka, NAIST, Japan
Co-Chair: M. Inoue, Huawei Techs, Japan

AMD5 - 1: 13:30 ***Invited*** **Properties of Oxide-Semiconductor TFTs under Mechanical Strain for Flexible Electronics**

P. Heremans[,**,***], A. d. J. d. Meux[*,***], A. Tripathi[**], S. Steudel[*], G. Pourtois[*], G. Gelinck[**]*

[*]imec, Belgium
[**]Holst Ctr., The Netherlands
[***]Univ. of Leuven, Belgium

AMD5 - 2: 13:55 ***Invited*** **Novel Technologies for Source and Drain Resistance Reduction in Short-Channel Self-Aligned InGaZnO Thin-Film Transistors**

K. Sakuma[*], K. Ota[,**], T. Irisawa[*,***], C. Tanaka[*], K. Ikeda[*], D. Matsushita[*], M. Saitoh[*]*

[*]Toshiba, Japan
[**]imec, Belgium
[***]AIST, Japan

AMD5 - 3
14:20
Advanced Compensation Technologies for Large-Size UHD OLED TVs

S. Takasugi, H.-J. Shin, M.-K. Chang, S.-M. Ko, H.-J. Park, J.-P. Lee, H.-S. Kim, C.-H. Oh

LG Display, Korea

AMD5 - 4
14:40
Dual-Gate Self-Aligned a-IGZO TFTs Using 5-Mask Steps

M. Nag[,**], F. D. Roose[*,**], A. Bhoolokam[*,**], K. Myny[*], A. Kumar[***], S. Steudel[*], J. Genoe[*,**], W. Dehaene[**], G. Groeseneken[*,**], P. Heremans[*,**,***]*

[*]imec, Belgium
[**]Katholieke Univ. Leuven, Belgium
[***]Holst Ctr., The Netherlands

----- Break -----

15:10 - 16:20 **Ohmi 1**

AMD6: Oxide TFT: Solution Processes

Chair: T. D. Anthopoulos, Imperial College London, UK
Co-Chair: H. Kumomi, Tokyo Inst. of Tech., Japan

AMD6 - 1:
15:10
Invited **Oxide-Channel Ferroelectric-Gate Thin Film Transistors Prepared by Solution Process**

E. Tokumitsu, T. Shimoda

JAIST, Japan

AMD6 - 2:
15:35
Invited **Stable Metal Semiconductor Field Effect Transistors on Oxide Semiconductor Channels Grown via Mist-CVD**

G. T. Dang, T. Kawaharamura[*], M. Furuta[*], M. W. Allen

Univ. of Canterbury, New Zealand
[*]Kochi Univ. of Tech., Japan

AMD6 - 3
16:00
Highly Reliable All-Printed Oxide TFT of High Work-Function Metal Electrodes with Low Contact Resistance by Doped Oxide Semiconductor

Y. Hirano, S. Matsumoto, R. Saotome, Y. Sone, S. Arae, M. Kusayanagi, Y. Nakamura, N. Ueda, K. Yamada

Ricoh, Japan

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Special Topics of Interest on Augmented Reality and Virtual Reality

Wednesday, December 9

13:30 - 15:10 **Ohmi 10**

DES1: Various Visualization Technologies

Chair: Y. Oyamada, Tottori Univ., Japan
Co-Chair: T. Mitasaki, NTT, Japan

DES1 - 1: 13:30 ***Invited*** **Near-Eye Display of Light Fields**
W. Wu, I. Tosic, N. Bedard, K. Berkner, N. Balram
Ricoh Innovations, USA

DES1 - 2: 13:55 ***Invited*** **Perceptual Illusions for Multisensory Displays**
T. Amemiya
NTT, Japan

DES1 - 3: 14:20 ***Invited*** **Duality in Computational Photography and Display**
S. Hiura
Hiroshima City Univ., Japan

DES1 - 4: 14:45 ***Invited*** **Augmented Reality Visualization Fusion**
Y. Oyamada
Tottori Univ., Japan

----- Break -----

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:15 **Ohmi 8**

INP3: AR and Interactive Systems

Chair: M. Sato, MIT Media Lab, USA
Co-Chair: N. Hashimoto, Citizen Holdings, Japan

INP3 - 1: 9:00 ***Invited*** **Development of a TV System Augmented Outside the TV Screen**
H. Kawakita[,**], M. Uehara[*], T. Nakagawa[*], M. Sato[**]*
[*]NHK, Japan
[**]Tokyo Inst. of Tech., Japan

INP3 - 2: 9:25 ***Invited*** **Disappearing Touchscreens: Making the World Interactive without Instrumenting It**

M. Sato

MIT Media Lab, USA

INP3 - 3: 9:50 ***Invited*** **Haptic Technologies for Surface Interaction**

H. Kajimoto

Univ. of Electro-Commun., Japan

----- Break -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:20 **Ohmi 9**

3D4/VHF6: Autostereoscopic and Head-Mounted Displays

Chair: Y. Takaki, Tokyo Univ. of A&T, Japan
Co-Chair: S. Uehara, Toshiba, Japan

3D4/VHF6 - 1 9:00 **HaptoMIRAGE: An Active-Shuttered Real Imaged Auto-Stereoscopic Display**

Y. Ueda, H. Nii[*], K. Minamizawa, S. Tachi[**]

Keio Univ., Japan
[*]IIJ Innovation Inst., Japan
[**]Univ. of Tokyo., Japan

3D4/VHF6 - 2 9:20 **Dual Orthogonal Flat Panel Autostereoscopic Display Using Visible Gap Contraction Prism**

H. Imai, N. Takanashi

NEC, Japan

3D4/VHF6 - 3 9:40 **Sense of Height and Virtual Body in Head-Mounted Display Environments**

T. Shibata, T. Inoue[*]

Tokyo Univ. of Social Welfare, Japan
[*]Kanagawa Inst. of Tech., Japan

3D4/VHF6 - 4 10:00 **Development of Poor Man's 3D-AR Platform for Amateur Game Creators**

Y. Yoneda, H. Kiriyama, K. Iwasaki, E. Dong, K. Takemura, R. Urushihara[*], T. Fujita

Tokyo Inst. of Tech., Japan
[*]Ochanomizu Univ., Japan

----- Break -----

10:40 - 12:00 **Ohmi 9**

3D5: 3D/Hyper-Realistic Display Systems

Chair: H. Sasaki, NICT, Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D5 - 1: 10:40 ***Invited*** **2D/3D Compatible Microstereopsis Display Using Patterned Retarder 4KTV**

Y. Kuroki

Comfort Vision Res. Lab., Japan

3D5 - 2: 11:00 ***Invited*** **See-Through Three-Dimensional Displays with Motion Parallax for Precise Image Superposition**

Y. Takaki

Tokyo Univ. of A&T, Japan

3D5 - 3: 11:20 ***Invited*** **See-Through Projection System**

T. Higuchi, T. Yoshikawa, K. Hashikawa, M. Akagi, T. Yoshizawa, K. Iwawaki, Y. Ito, H. Kogoma, N. Saegusa

Pioneer, Japan

3D5 - 4: 11:40 ***Invited*** **Floating Image Display Based on a Dihedral Corner Reflector Array**

Y. Maeda

Parity Innovations, Japan

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

15:10 - 16:10 **Ohmi 9**

FMC5: Augmented Reality and Virtual Reality

Chair: K. Käläntär, Global Optical Solutions, Japan
Co-Chair: I. Amimori, LLC SN Partners, Japan

FMC5 - 1: 15:10 ***Invited*** **Real-Time Dynamic Holographic 3D Display in Materials to Future Holographic 3D Televisions**

H. Gao, J. Liu, C. Zeng, Q. Yao, P. Liu, Y. Yu, H. Zheng, Z. Zeng

Shanghai Univ., China

FMC5 - 2: 15:30 ***Invited*** **Aerial Three-Dimensional Display Based on Retro-Reflective Optical Imaging**

D. Miyazaki, Y. Maeda[*], S. Onoda, Y. Tokubo, S. Murakami, R. Tamaki, T. Mukai

Osaka City Univ., Japan
[*]Parity Innovations, Japan

FMC5 - 3 15:50 **Polarization State Analysis for Polarized Aerial Imaging by Retro-Reflection (pAIRR)**

M. Nakajima[*], K. Onuki[*], I. Amimori[**], Y. Hirotsugu[,***]*

[*]Utsunomiya Univ., Japan
[**]LLC SN Partners, Japan
[***]JST, CREST, Japan

----- Break -----

16:50 - 18:00 **Ohmi 10**

PRJ6: Wearable Applications

Chair: S. Shikama, Setsunan Univ., Japan
Co-Chair: S. Ouchi, Hitachi, Japan

PRJ6 - 1: 16:50 ***Invited*** **High-Luminance See-Through Eyewear Display with Novel Volume Hologram Waveguide Technology**

S. Nakano, T. Oku, K. Akutsu, M. Kuwahara, T. Yoshida, E. Kato, K. Aiki, I. Matsumura, A. Machida, H. Mukawa

Sony, Japan

PRJ6 - 2: 17:15 ***Invited*** **Augmented Vision for Minimally Invasive Surgery**

T. Nakaguchi

Chiba Univ., Japan

PRJ6 - 3 17:40 **A Head Mounted Display Using the Original Flexible Arm and Headband**

M. Watanabe, Y. Fukuda, M. Yagi, H. Ishizaki, M. Nakanishi[*], N. Hanafusa[**], T. Katano

Brother Inds., Japan
[*]Keio Univ., Japan
[**]Univ. of Tokyo Hospital, Japan

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Special Topics of Interest on Lighting Technologies

Wednesday, December 9

15:10 - 16:30 **Ohmi 1**

OLED2: OLED for Lighting Applications

Chair: Y. Kijima, JOLED, Japan
Co-Chair: H. Kuma, Idemitsu Kosan, Japan

OLED2 - 1: *Invited* Recent Advances in OLED Lighting
15:10
M. Boesing, F. Lindla, A. Koehnen, V. Gohri, M. Ruske, E. Meulenkamp, M. Boroson[*]
Philips Business Ctr. OLED Lighting, Germany
[*]OLEDWorks, USA

OLED2 - 2 Blue Light Efficiency Enhancement of OLED by Thin Film Included Micro-Particles and Copper Sulfate Solution
15:30
C.-H. Chiu, W.-C. Chien[*], C.-H. Chien[*], Y.-H. Chen[*]
Chunghwa Picture Tubes, Taiwan
[*]Tatung Univ., Taiwan

OLED2 - 3 High Efficient and Stable Quantum Dots Film with Interdiffused Structure as Down-Conversion Material Utilized in Blue Organic Light Emitting Diode for Solid-State Lighting Application
15:50
V. Arasu, D. Jo, B. Kim, H. Chung
Sungkyunwan Univ., Korea

OLED2 - 4 Fabrication of High Efficiency Color-Conversion Layer for Hybrid OLED Lighting
16:10
B. Kim, D. Jo, D. Yoon, H. Chung
Sungkyunkwan Univ., Korea

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:10 **Ohmi 2**

PH1: Phosphors for Lighting Application

Chair: A. Meijerink, Utrecht Univ., The Netherlands
Co-Chair: K. Wani, TAZMO, Japan

PH1 - 1: 9:00 ***Invited*** **High Directional LED Lighting for Forming Pattern, HOLOLIGHT: Its Business Developments and Prospects**

T. Ikeda

Pi Photonics, Japan

PH1 - 2: 9:25 ***Invited*** **The GE TriGain Phosphor Based upon $K_2SiF_6:Mn^{4+}$ and Its Use in LED Lighting and LCD Backlights**

A. A. Setlur, F. Garcia, J. E. Murphy, S. P. Sista

GE Global Res., USA

PH1 - 3 9:50 **The Synthesis, Characterisation and Potential of Eu^{3+} Doped Molybdate Phosphors for White Light Emitting Diodes**

A. Lipman, M. Fathullah, R. Stone, G. R. Fern, T. Ireland, C. Frampton, J. Silver

Brunel Univ. London, UK

----- Break -----

10:30 - 12:30 **Ohmi 6**

Poster PHp2: Phosphors for Lighting Application

PHp2 - 1 **The Enhancement on Photoluminescence Characteristics of $Ba_{1-x}ZrSi_3O_9:xEu^{2+}$ Phosphors by Sr^{2+} Substituting**

K.-C. Cheng, C.-H. Chiang, T.-S. Zhan, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

PHp2 - 2 **Effects of Fluxes on Luminescent Properties of YAG:Ce Phosphors and Their Application to White Light-Emitting Diodes**

C.-H. Chiang, T.-S. Zhan, K.-C. Cheng, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

PHp2 - 3 **High Directivity Light Source Based on Photonic Crystal Structure**

C. C. Chiu, F.-L. Hsiao

Nat. Changhua Univ. of Education, Taiwan

PHp2 - 4 **Synthesis and Luminescent Properties of Novel Ce^{3+}- and Eu^{2+}-Doped $La_3Br(SiS_4)_2$ Bromothiosilicate Phosphors for White LEDs**

S.-P. Lee, T.-M. Chen

Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

IDW Best Paper Award

IDW Outstanding Poster Paper Award

These awards will go to the most outstanding papers selected from those presented at IDW '15.
The 2015 award winners will be announced on the IDW website: http://www.idw.or.jp/award.html

Quantum Dots Sessions

PHp 10:30 – 12:30 Thursday, Dec. 10
Ohmi 6 (Poster)

MEET1 16:05 – 17:25 Thursday, Dec. 10
PH3 9:00 – 10:20 Friday, Dec. 11
MEET5 16:50 – 17:50 Friday, Dec. 11
Ohmi 8 (Oral)

Special Topics of Interest on Printed Electronics

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

Poster **FLXp3: Flexible Electronics 3**

FLXp3 - 1 **Development of Novel Primer Material Suitable for COP Film and Ag Nano-Ink**

T. Yamate[,**], E. Mieda[*], K. Kumazawa[*], H. Suzuki[*], M. Akazome[**]*

[*]Nippon Soda, Japan
[**]Chiba Univ., Japan

Friday, December 11

9:00 - 10:00 **Ohmi 2**

OLED4: Advanced OLED Technologies II

Chair: T. Komatsu, JOLED, Japan
Co-Chair: T. Fukuda, Saitama Univ., Japan

OLED4 - 1 9:00 **Solution-Processed All Phosphorescent Small Molecule White Multi-OLED System**

K. Oikawa, T. Iwasaki, T. Tsujimura, Y.-J. Pu[*], T. Chiba[*], S. Ohisa[*], J. Kido[*]

Konica Minolta, Japan
[*]Yamagata Univ., Japan

OLED4 - 2 9:20 **Novel Materials for Highly Efficient Long-Lived Solution-Processed Phosphorescent Red OLED Devices**

A. Hayer, P. Stoessel, N. Koenen, H. Heil, P. Levermore, B. Burkhart, K. Stegmaier, Böhm, H. Buchholz

Merck, Germany

OLED4 - 3 9:40 **OLED Dry Film Uniformity Compensation by Inkjet Process**

C.-Y. Lin, C.-Y. Lo

Nat. Tsing Hua Univ., Taiwan

----- Break -----

10:40 - 11:25 **Ohmi 1**

AMD4: Printed TFT

Chair: H. Minemawari, AIST, Japan
Co-Chair: Y. Fujisaki, NHK, Japan

AMD4 - 1: 10:40 ***Invited*** **Organic Blend Semiconductors for High Performance Thin-Film Transistor Applications**

T. D. Anthopoulos

Imperial College London, UK

AMD4 - 2 11:05 **Development of All Solution Processed TFT in ESL Configuration**

M. Marinkovic, S. Bom[*], T. Balster[*], K. Su, A. Merkulov, V. Wagner[*], R. Anselmann

Evonik Inds., Germany
[*]Jacobs Univ. Bremen, Germany

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 14:40 **Ohmi 2**

FLX4: Flexible Printed Electronics

Chair: T. Sekitani, Osaka Univ., Japan
Co-Chair: M. Ito, Toppan Printing, Japan

FLX4 - 1: 13:30 ***Invited*** **Exploring Low-Dimensional Charge Transport Phenomena in Solution-Processed Metal Oxide Superlattice Transistors**

T. D. Anthopoulos

Imperial College London, UK

FLX4 - 2: 13:55 ***Invited*** **Fluorophilicity as Selection Criterion of Solvents for Printed Organic Electronics**

Y. Kuwana, T. Abe, N. Shirota, T. Sakurada, M. Obi

Asahi Glass, Japan

FLX4 - 3 14:20 **Highly Stable Transparent Conductive Coatings on Ultra-Thin Glass for Flexible Devices**

M. Junghaehnel, S. Weller, T. Gebel[*], W. Skorupa[**], T. Schumann[**]

Fraunhofer, Germany
[*]DTF Tech. Germany
[**]Helmholtz-Zentrum Dresden-Rossendorf, Germany

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Workshop on LC Science and Technologies

Wednesday, December 9

13:30 - 14:55 **Ohmi 9**

LCT1: Fascinating High Resolution Panel Technologies

Chair: S. Ishihara, Osaka Inst. of Tech., Japan
Co-Chair: A. Kubono, Shizuoka Univ., Japan

LCT1 - 1: 13:30 ***Invited*** **The Latest IPS LCD Technology Realizing Super High Resolution and Wide Color Gamut**

I. Hiyama, R. Oke, K. Miyazaki, J. Maruyama, N. Sato, T. Kato, A. Hirota

Panasonic Liquid Crystal Display, Japan

LCT1 - 2 13:55 **Reflective Color LCDs with High Image Quality Using LTPS TFTs in Low Frequency Driving**

H. Yamaguchi, Y. Kawata, Y. Matsuura, M. Akiyoshi, K. Takebayashi, T. Sano, A. Murayama, Y. Fukunaga, M. Tamaki, M. Mitsui, N. Takasaki, T. Nakamura, Y. Aoki, H. Hayashi

Japan Display, Japan

LCT1 - 3 14:15 **High Resolution Display Solution with LTPS Technology**

C. P. Xiang, Z. D. Zhang, H. Wu, Y. Z. Ma, B. P. Liu, B. Z. Liu, L. Wen, X. F. Zhou, B. P. Shen, J. Y. Li

Xiamen Tianma Microelect., China

LCT1 - 4 14:35 **High Performance Active-Matrix Transparent Display by PDLC and High Transmittance Backlight Module**

C.-H. Chen, C.-W. Su, J.-T. Lien

Chunghwa Picture Tubes, Taiwan

----- Break -----

15:10 - 16:10 **Ohmi 9**

LCT2: Advanced LC Materials

Chair: I. Hiyama, Panasonic Liquid Crystal Display, Japan
Co-Chair: F. Araoka, RIKEN, Japan

LCT2 - 1 15:10 **Oligothiophene-Based Chiral LC Semiconductors: Circularly Polarized Light Emission and Anomalous Photovoltaic Effect**

M. Funahashi, T. Hamamoto, Y. Funatsu, A. Seki

Kagawa Univ., Japan

LCT2 - 2
15:30
Bent and U-Shaped LCs for Photoswitching Properties

M. L. Rahman, M. M. Yusoff, S. M. Sarkar, S. Kumar[*], C. Tschierske[**]

Universiti Malaysia Pahang, Malaysia
[*]Raman Res. Inst., India
[**]Martin-Luther-Univ. Halle-Wittenberg, Germany

LCT2 - 3
15:50
Gradual Transition from Ferroelectric to Antiferroelectric LC Phase for Binary Mixture System

Z. Feng, K. Ishikawa

Tokyo Inst. of Tech., Japan

Author Interviews and Demonstrations
16:30 – 17:00, Ohmi 6

Thursday, December 10

10:30 - 12:30 **Ohmi 6**

Poster LCTp1: Display Evaluations

LCTp1 - 1
Improving L_0 Leakage of LCD Panel with COA Structure by Optimizing Through Hole Profile of Color Filter and Shape of Second Metal

J. Li, H. H. Chen, Y.-J. Lee

Shenzhen China Star Optoelect. Tech., China

LCTp1 - 2
Research Gamma Curve of VA Mode and ADS Mode in Oblique Direction

Y. Y. Qu, H. L. Zhang, H. B. Zhao, T. Dong, F. F. Wang, S. M. Lee, D. Wang, X. B. Shao

BOE Display Tech., China

LCTp1 - 3
Analysis of the Flicker Shift of Advanced Super Dimension Switch Mode TFT-LCD

C. Chen, S. Wang, Z. Zhang, H. Chu, J. Ma, J. Zhang, K. H. Park, Y. B. Lee, C. Che, S. K. Lee

BOE HF, China

LCTp1 - 4
Research of Optical Performance about TFT-LCD with Different Array Layer Combinations

Z.D. Zhang, B.Y. Zheng, L. Wu, B.P. Shen, C.H. Tseng

Xiamen Tianma Microelect., China

10:30 - 12:30 **Ohmi 6**

Poster **LCTp2: Innovative Technology for Surface/Interface Control**

LCTp2 - 1 **Photoinduced In-Plane Alignment of Nematic LCs Doped with Photoalignable Composite Materials**

N. Kawatsuki, Y. Hashimoto, M. Kondo, T. Sasaki[*]*, H. Ono*[*]

Univ. of Hyogo, Japan
[*]Nagaoka Univ. of Tech., Japan

LCTp2 - 2 **Two-Band Photo-Alignment Method for High Speed TN-LC Cell**

B.-J. Mun, K.-W. Park, J. H. Lee[*]*, B. K. Kim*[*]*, H. C. Choi*[*]*, G.-D. Lee*

Dong-A Univ., Korea
[*]LG Display, Korea

LCTp2 - 3 **The Study of Pre-Tilt Alignment with Different Photo-Reactive Side Chains in Surface-Controlled VA Mode**

R. Zhao[*]*, C.-C. Hsieh*[*]*, Y. Zhao*[*]*, Y. Song*[*]*, X. Li*[*]*, C.-Y. Chiu*[*]*, C.-Y. Lee*[*]*, A. Lien*[*,**]

[*]Shenzhen China Star Optoelect. Tech., China
[**]TCL Corporate Res., China

LCTp2 - 4 **Pretilt Angle Control of LCs with Homeotropic Alignment Using Photocurable Polymer**

C.-J. Hsu, B.-L. Chen, C.-Y. Huang

Nat. Changhua Univ. of Education, Taiwan

LCTp2 - 5 **Zinc Oxide Films for Controlling the Pretilt Angles of LC Devices**

C.-C. Liu, J.-W. Hu, S.-C. Jeng

Nat. Chiao Tung Univ., Taiwan

LCTp2 - 6 **Random Alignment of Nematic LC on Graphene Films and the Electro-Optical Characteristics**

A. Nakamura, T. Nakagaki, A. Kubono

Shizuoka Univ., Japan

LCTp2 - 7 **Film Substrate Which Needs No Alignment Layer for LC Molecules**

T. Araishi, Y. Yoshida, Y. Kimura, S. Ishihara

Osaka Inst. of Tech., Japan

10:30 - 12:30 **Ohmi 6**

Poster **LCTp3: Optical Elements for Phase Control**

LCTp3 - 1 **The Optical Characteristic of a Polarization-Dependent Diffuser Based on NOA65-Doped E7**

W.-K. Lin, W.-C. Su

Nat. Changhua Univ. of Education, Taiwan

LCTp3 - 2 **Negative Dispersion-Negative Birefringence Retarder for the Compensation Film of LCDs**

A.K. Srivastava, S. Yang, H. Lee, H. Kim, S. Yeo, J.-H. Lee

Chonbuk Nat. Univ., Korea

----- Lunch -----

13:40 - 15:40 **Ohmi 6**

Poster **LCTp4: IPS/FFS Display Modes**

LCTp4 - 1 **A Novel Method to Simulate the Flexoelectric Effect in FFS LCD**

K.-C. Chu, S.-Y. Su, H.-W. Cheng, W.-C. Tsai

AU Optronics, Taiwan

LCTp4 - 2 **Optically Compensated LCDs Exhibiting High Speed Response in P- and N-TB and P- and N- IPS, FFS Modes**

S. Kobayashi, H. Akiyama[*]

Tokyo Univ. of Sci. Yamaguchi, Japan
[*]DIC, Japan

LCTp4 - 3 **The Chromaticity Study of the Photo Alignment IPS LC Mode**

Y. Zhao, Y. Song, C.-C. Hsieh, R. Zhao, X. Li, C.-Y. Chiu, C.-Y. Lee, A. Lien[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

LCTp4 - 4 **The Study of Transmittance of Negative and Positive LC Effect on FFS/IPS Mode**

Y. Song, Y. Zhao, R. Zhao, C.-C. Hsieh, C.-Y. Chiu, C.-Y. Lee, L. Alan[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

13:40 - 15:40 **Ohmi 6**

Poster LCTp5: Emerging LCD Technologies

LCTp5 - 1 **Polarizer-Free LCD Having Black Dyes**

G. H. Kim, W.-J. Lee, Y.-H. Kim, C.-S. Hwang

ETRI, Korea

LCTp5 - 2 **Edge Emission Patterns from an LC/Dye Cell**

S. Itaya, N. D. B. M Azmi, M. Ohta, S. Ozawa, I. Fujieda

Ritsumeikan Univ., Japan

LCTp5 - 3 **A Transparent Display Based on Dye-Doped LC Technology**

J.-N. Lin, C.-W. Su

Chunghwa Picture Tubes, Taiwan

LCTp5 - 4 **Dual-View Blue Phase LCD**

C.-T. Hsieh, C.-H. Chang, C.-Y. Lin[*], C.-Y. Huang[*], C.-J. Hsu[*], C.-J. Tien[**], K.-Y. Lo[***]

AU Optronics, Taiwan
[*]Nat. Changhua Univ. of Education, Taiwan
[**]Cheng Shiu Univ., Taiwan
[***]Nat. Cheng Kung Univ., Taiwan

LCTp5 - 5 **Full Color Cholesteric LCD with Temperature-Invariant Pitches**

J. H. Han, J.-H. Kim, C.-J. Yu

Hanyang Univ., Korea

LCTp5 - 6 **Electric Field Effect on Polymerization Process of Polymer-Stabilized Blue Phase LC**

W.-H. Li, D.-C. Hu, Y.-J. Lee[*], A. Lien[**], J.-G. Lu

Shanghai Jiao Tong Univ., China
[*]Shenzhen China Star Optoelect. Tech., China
[**]TCL Corporate Res., China

13:40 - 15:40 **Ohmi 6**

Poster LCTp6: Liquid Crystal Lens

LCTp6 - 1 **LC Lens with Different Cell Gap**

R. Bao, G. Chen, H. Mai, M. Ye

SuperD, China

LCTp6 - 2 **Thermally Controllable and Polarization Independent LC Lenses Fabricated on Flexible Substrates**

Y.-Y. Chiu, C.-Y. Chien, C.-R. Sheu

Nat. Cheng Kung Univ., Taiwan

LCTp6 - 3 **Low Voltage LC Lens with a Ring Floating Electrode**
J.-J. Jhang, C.-L. Hsu, C.-Y. Huang
Nat. Changhua Univ. of Education, Taiwan

LCTp6 - 4 **Tunable Optical Deflector with Fresnel Type of LC Device**
G. Shibuya, H. Yoshida, M. Ozaki
Osaka Univ., Japan

LCTp6 - 5 **Completely Preventing Disclination Lines Occurred in LC Lens Array via an Additionally Whole Photoresist Film**
P.-H. Tang, Y.-J. Chang, C.-R. Sheu
Nat. Cheng Kung Univ., Taiwan

----- Break -----

16:00 - 17:25 **Ohmi 9**

3D2/LCT3: Autostereoscopic 3D Displays

Chair: Y. Kuroki, Confort Vision Res. Lab., Japan
Co-Chair: S. Oka, Japan Display, Japan

3D2/ LCT3 - 1: 16:00 ***Invited*** **LC GRIN Lens Technology for Multi-Functional 3D Display**
S. Uehara
Toshiba, Japan

3D2/ LCT3 - 2 16:25 **Video Capable Dual-Layer Autostereoscopic Display with Motion Parallax**
H. Suginohara, M. Sugano, K. Minami
Mitsubishi Elec., Japan

3D2/ LCT3 - 3 16:45 **Resolution Multiplication Method for Autostereoscopic 3D Display**
F. Mukhtarov, S. D. Hwang
Samsung Elect., Korea

3D2/ LCT3 - 4 17:05 **Wide Viewing Angle Autostereoscopic 3D Display with Eye-Tracking System**
Y. Hyodo, S. Oka, T. Koit, H. Sugiyama, Y. Maede, T. Ochiai, T. Takahashi, S. Komura
Japan Display, Japan

----- Break -----

17:40 - 18:40 **Ohmi 2**

LCT4: New Fast Response LCDs

Chair: N. Kawatsuki, Univ. of Hyogo, Japan
Co-Chair: K. Miyachi, Sharp, Japan

LCT4 - 1
17:40
Fast Twist-VA Bidirectional Field Switching Mode LCD
A. R. Geivandov, M. I. Barnik, I. V. Kasyanova, V. S. Palto, S. P. Palto
Inst. of Crystallography RAS, Russia

LCT4 - 2
18:00
Properties of Nano-Phase-Separated LCs with Fast Response
T. Fujisawa, K. Jang, F. Kodera, M. Gushiken, S. Kosaka, G. Sudou, H. Hasebe, H. Takatsu
DIC, Japan

LCT4 - 3
18:20
LC Phase Modulators with Fast Optical Response and Low Light Scattering Realized via Processes of He-Ne Laser Holographic Exposure
C.-Y. Chien, C.-R. Sheu
Nat. Cheng Kung Univ., Taiwan

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 9:45 **Ohmi 3**

FLX2/LCT5: Flexible LCDs

Chair: H. Funahashi, Kagawa Univ., Japan
Co-Chair: H. Okada, Toyama Univ., Japan

FLX2/ LCT5 - 1: 9:00
Invited **Advanced Polymer and LC Technologies for High Quality Flexible Displays**
H. Fujikake, H. Sakai, A. Sato, E. Uchida, D. Sasaki, Y. Obonai, Y. Isomae, T. Ishinabe
Tohoku Univ., Japan

FLX2/ LCT5 - 2 9:25
Uniform Lying Helix of Cholesteric LC Aligned by Means of Coating Method with Electric Treatment
N. Endo, M. Kimura
Nagaoka Univ. of Tech., Japan

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 15:00 **Ohmi 5**

LCT6: IPS/FFS Display Modes

Chair: T. Ishinabe, Tohoku Univ., Japan
Co-Chair: H. Wakemoto, Japan Display, Japan

LCT6 - 1: 13:30 ***Invited*** **Analysis of Novel IPS Mode for Fast Response**

T. Matsushima, K. Takizawa

Japan Display, Japan

LCT6 - 2: 13:55 ***Invited*** **Development of Novel LC Compounds and Mixtures to Improve Transmittance for Np-FFS Mode**

Y. Matsumura, H. Tanaka, T. Maeda, T. Asakura, E. Machida

JNC Petrochem., Japan

LCT6 - 3 14:20 **The Influence of LC Dielectric Properties on Cell Transmittance in FFS-LCD**

C.-R. Huang, P.-C. Liao, Y.-L. Yeh, Y.-C. Chen, W.-H. Hsu

AU Optronics, Taiwan

LCT6 - 4 14:40 **Study on Flickering Behavior in Low-Frequency Driven AH-IPS LC Mode**

D.-J. Lee[,**], M.-K. Park[**], J.-S. Park[**], H. Lee[*], J.-H. Baek[*], J.-H. Lee[*], H. Choi[*], Y. M. Ha[*], H.-R. Kim[**]*

[*]LG Display, Korea
[**]Kyungpook Nat. Univ., Korea

----- Break -----

15:10 - 16:15 **Ohmi 5**

LCT7: Innovative Technology for Surface/Interface Control

Chair: K. Ishikawa, Tokyo Inst. of Tech., Japan
Co-Chair: Y. Matsumura, JNC Petrochem., Japan

LCT7 - 1: 15:10 ***Invited*** **Photoalignment Materials for LCDs and Functional Films**

N. Kawatsuki

Univ. of Hyogo, Japan

LCT7 - 2 15:35 **Electrowetting of Nematic LCs**

T. Unate, T. Nagase, H. Naito

Osaka Pref. Univ., Japan

LCT7 - 3
15:55 **Reduction of Optical Scattering and Driving Voltage of PDLCs**

G.-Y. Shim[*], H. G. Kim[*], J.-S. Park[*], D.-J. Lee[,**], J.-H. Baek[**], J.-H. Lee[**], B. K. Kim[**], H.-R. Kim[*]*

[*]Kyungpook Nat. Univ., Korea
[**]LG Display, Korea

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Special Address

Lighting the Earth by LEDs

Hiroshi Amano
2014 Nobel Laureate
Nagoya Univ., Japan

16:40 – 17:40 Wednesday, Dec. 9
Ohmi 1 (2F)

"Innovative Demonstration Session" *by Oral and Poster Presenters*

Live demonstrations of emerging information display technologies

Thursday, Dec. 10, 2015
10:30 – 16:00
Ohmi 5 (2F)

Workshop on Active Matrix Displays

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

***Poster* AMDp1: Oxide TFT**
Special Topics of Interest on Oxide-Semiconductor TFT

AMDp1 - 1 **Stress Durability of CAAC-IGZO TFTs**

R. Honda[*], H. Baba[*], A. Suzuki[*], M. Hayakawa[**], N. Ishihara[*], H. Kanemura[**], Y. Shima[**], S. Saito[**], S. Matsuda[*], K. Dairiki[*], J. Koezuka[**], S. Yamazaki[,**]*

[*]Semiconductor Energy Lab., Japan
[**]Advanced Film Device, Japan

AMDp1 - 2 **Correlation Among Crystal Morphology, Surface Shape, and Oxygen Vacancy Formations in In-Ga-Zn Oxide**

M. Nakashima, T. Hiramatsu, E. Kikuchi, Y. Yamada, M. Oota, K. Dairiki, S. Yamazaki

Semiconductor Energy Lab., Japan

AMDp1 - 3 **Enhancement of Field-Effect Mobility in a-IGZTO TFTs with a BCE Structure Using Floating Metal Electrodes**

M. Ochi, S. Morita, H. Goto, T. Kugimiya, M. Kanamaru[*], M. N. Fujii[**], Y. Uraoka[**]

Kobe Steel, Japan
[*]Kobelco Res. Inst., Japan
[**]NAIST, Japan

AMDp1 - 4 **Suppression of Photo-Bias Instability of Transparent Amorphous Indium Oxide Thin Film Transistors by in situ Nitrogen Doping**

C.-H. Chang, C.-C. Chang, P.-T. Liu, Y.-C. Tsai[*]

Nat. Chiao Tung Univ., Taiwan
[*]Appl. Materials, Taiwan

AMDp1 - 5 **Related a-IGZO Oxide Structure Analysis for Reliability Improvement**

W.-T. Chen, K.-J. Chang, W.-P. Chen, C.-C. Nien, K.-K. Chen, H.-H. Lu, Y.-H. Lin

AU Optronics, Taiwan

AMDp1 - 6 **Simple Current-Biased Voltage-Programmed a-IGZO Pixel Circuit for High-Resolution AMOLED Displays**

F.-H. Chen, Y.-T. Liu, C.-M. Lu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 7 **Development of High Performance AM-OLED Display Using IGZO TFT**

X.-W. Lv, Y.-H. Meng, C.-Y. Su, W.-H. Li, L.-Q. Shi, H.-J. Zhang, W. Shi, S.-M. Ge, T. Sun, C.-Y. Lee, A. Lien[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

AMDp1 - 8 **Investigation of Stacking Multi-Layers Oxide Thin Film Transistors Fabricated by Sol-Gel Process**

C. Y. Huang, C. E. Tsay, Y. W. Wang

Nat. Changhua Univ. of Education, Taiwan

AMDp1 - 9 **High Reliable Indium Gallium Zinc Oxide Thin Film Transistor under Negative Bias Illumination Stress**

J. Liu, J. Li, J. S. Qin, L. Jacky, L. Can

Shenzhen China Star Optoelect. Tech., China

AMDp1 - 10 **Characteristics Improvements by Adopting Multi-Active Layer Structure in a-IGZO Thin Film Transistors**

D. Xu, X. Duan, M. K. Baek, Y. Youn, C. Che, S. Lee

Hefei BOE Optoelect. Tech., China

AMDp1 - 11 **Electrical Properties of a-IGZO TFT with Various Annealing Temperature**

Y.-H. Hsieh, M.-C. Chen, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 12 **Comparison of Electrical Performance for a-IGZO Based Single Gate and Dual Gate Driving TFT Using TCAD**

M. M. Billah, M. D. H. Chowdhury, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 13 **Pixel Circuit Employing Simple Operation for High-Resolution AMOLED Displays**

W.-C. Chiu, Y.-T. Liu, C.-M. Lu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp1 - 14 **Analysis and Improvement of IGZO TFT-LCD Reliability**

W. Qin, J. Y. Zhao, W. P. Teng, L. Wang, J. I. Ryu, J. M. Jun

BOE Tech. Group, China

AMDp1 - 15 **Investigation on Ambient Degradation of Amorphous InGaZnO Thin Film Transistors in an Unsealed Chamber**

J. Xu, Q. Wu, L. Xu, H. Xie, S. Li[*], C.-Y. Lee[*], A. Lien[**], C. Dong

Shanghai Jiao Tong Univ., China
[*]Shenzhen China Star Optoelect. Tech., China
[**]TCL Corporate Res., China

13:40 - 15:40 **Ohmi 6**

Poster **AMDp2: Poster: Active-Matrix Devices**

AMDp2 - 1 **491-ppi High Resolution a-Si TFT-LCD with High Transmittance and Slim Border**

H. Y. Cheng, P. C. Yeh, H. C. Huang, C. S. Cheng, M. W. Huang

AU Optronics, Taiwan

AMDp2 - 2 **Poly-Si Hall Devices for Magnetic-Field Sensors - Sensitivity Enhancement by High-Voltage Application -**

M. Kimura, A. Yoshikawa, T. Matsumoto, H. Shiga, T. Matsuda, T. Ozawa[*], K. Aoki[*], C.-C Kuo[*]

Ryukoku Univ., Japan
[*]AU Optronics Japan, Japan

AMDp2 - 3 **Novel SPC Poly-Si TFTs for AMOLED Application**

Y. J. Hsu, R. Kakkad, Y. Li, X. Y. Zhou, X. X. Zhang, Y. C. Wu

Shenzhen China Star Optoelect., China

AMDp2 - 4 **Novel Low-Power Negative Level Shifter for Negative High Voltage Generators Using LTPS-TFTs**

A. Ueda, M. Yoshida

Tokai Univ., Japan

AMDp2 - 5 **Novel a-Si:H Gate Driver Circuit with Sharing Pull-Down Structure**

M.-Y. Deng, P.-C. Lai, F.-H. Chen, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp2 - 6 **Precise Simulation of Brightness Variation on Whole AMOLED Panel Caused by Power Line Voltage Drop**

C.-H. Shim, C. Tsukii, S.-K. Kim, R. Hattori, T. Munakata[*]

Kyushu Univ., Japan
[*]Jedat, Japan

AMDp2 - 7 **Amorphous Silicon Integrated Memory Pixel Circuit with Low Power Consumption in TFT-LCD Application**

G.-Y. Zheng, P.-T. Liu, C.-Y. Tsai*, Y.-F. Tu**

Nat. Tsing Hua Univ., Taiwan
**Nat. Chiao-Tung Univ., Taiwan*

AMDp2 - 8 **New AMOLED Pixel Circuit with Resolution-Independent V_{TH} Compensation Capability**

C.-E. Lee, Y.-T. Liu, P.-S. Chen, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp2 - 9 **Electrical Characteristics of Two-Step Gate Insulator Deposition on Low-Temperature Poly-Si TFTs**

Y.-S. Cho, W.-H. Son, Y.-K. Lee, H.-S. Lee, K.-H. Moon

LG Display, Korea

----- Lunch -----

16:00 - 17:10 **Ohmi 1**

AMD1: Oxide TFT: Crystalline Oxide
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: H. Kumomi, Tokyo Inst. of Tech., Japan
Co-Chair: M. Hiramatsu, Japan Display, Japan

AMD1 - 1: 16:00 ***Invited*** **CAAC-Oxide Semiconductor Material and Its Applications**

M. Tsubuku, S. Yamazaki

Semiconductor Energy Lab., Japan

AMD1 - 2: 16:25 ***Invited*** **Change in Structure and TFT Performances of IZO, IGO and IGZO Films by Crystallization**

A. Suko, J. Jia, S. Nakamura, Y. Shigesato

Aoyama Gakuin Univ., Japan

AMD1 - 3 16:50 **Improvement in Characteristics, Reliability and Dispersion of CAAC-IGZO FETs with Surrounded Channel Structure**

M. Hayakawa, S. Matsuda**, S. Saito*, Y. Shima*, D. Matsubayashi**, M. Dobashi*, K. Tsutsui**, R. Honda**, J. Koezuka*, K. Okazaki*, S. Yamazaki*,***

**Advanced Film Device, Japan*
***Semiconductor Energy Lab., Japan*

----- Break -----

17:40 - 19:10 **Ohmi 1**

AMD2: High Resolution Displays Using LTPS and Oxide TFTs
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: P. Heremans, imec, Belgium
Co-Chair: H. Hamada, Kinki Univ., Japan

AMD2 - 1: 17:40 ***Invited*** **2K4K 550-ppi In-Cell Touch LTPS TFT-LCD**
M. Tada, T. Nakamura, H. Kimura
Japan Display, Japan

AMD2 - 2 18:05 **Novel Integrated Gate Driver with Coplanar a-IGZO TFTs for AMOLED Displays**
W.-S. Choi, K.-T. Kim, M.-G. Kang, K.-I. Chun, B.-K. Cho, S.-H. Park, H.-N. Cho, D.-H. Kim, Y.-H. Jang, J.-Y. Bae, K.-S. Park, I.-B Kang
LG Display, Korea

AMD2 - 3 18:25 **Development of 32-in. 8k4k LCD with Oxide Semiconductor and GOA Technology**
W. Meng, Y. Zhao, Q. Gan, F. Zhao, C.-K. Zhang, C. Chiu, G. Liu, L. Shi, C. Su, C. Dai, L. Zeng, T. Lee, C. -Y. Lee, A. Lien[*]
Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

AMD2 - 4: 18:45 ***Invited*** **Over 800-ppi Liquid Crystal Display with High Aperture Ratio Using IGZO Platform**
S. Uchida, N. Ueda, Y. Ogawa, K. Okada, A. Oda, S. Katoh, K. Yamamoto, K. Yamamoto, T. Matsuo, H. Kawamori
Sharp, Japan

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:30 **Ohmi 1**

AMD3: Oxide TFT: Reliability
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: Y. Yamamoto, Japan
Co-Chair: K. Takatori, NLT Techs., Japan

AMD3 - 1: 9:00 ***Invited*** **Reliability of Oxide TFTs**
B. S. Bae, S. M. Shin, K. M. Yu, E.-J. Yun
Hoseo Univ., Korea

AMD3 - 2: 9:25 ***Invited*** **Highly Reliable Oxide Thin Film Transistors for Flexible Devices**

Y. Uraoka, M. Fujii, Y. Ishikawa

NAIST, Japan

AMD3 - 3 9:50 **Electrical Characteristics and Stability of Bottom Gate a-InGaZnO TFTs on Flexible Substrate**

H.-W. Li, C.-F. Yang, C.-P. Chang, C.-H. Tsai, H.-H. Lu

AU Optronics, Taiwan

AMD3 - 4 10:10 **Novel BTS Model and Methodology for AC-Stress-Induced Long-Term Reliability in Thin-Film Transistors**

J. Jang, K. Jeon, J. Yang, J. Park, M. Seo, K. Jeong, K. Kim

Samsung Display, Korea

----- Break -----

10:40 - 11:25 **Ohmi 1**

AMD4: Printed TFT
Special Topics of Interest on Printed Electronics

Chair: H. Minemawari, AIST, Japan
Co-Chair: Y. Fujisaki, NHK, Japan

AMD4 - 1: 10:40 ***Invited*** **Organic Blend Semiconductors for High Performance Thin-Film Transistor Applications**

T. D. Anthopoulos

Imperial College London, UK

AMD4 - 2 11:05 **Development of All Solution Processed TFT in ESL Configuration**

M. Marinkovic, S. Bom[*]*, T. Balster*[*]*, K. Su, A. Merkulov, V. Wagner*[*]*, R. Anselmann*

Evonik Inds., Germany
[*]*Jacobs Ing., Univ. Bremen, Germany*

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 15:00 **Ohmi 1**

AMD5: Oxide TFT: Applications
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: Y. Uraoka, NAIST, Japan
Co-Chair: M. Inoue, Huawei Techs., Japan

AMD5 - 1: 13:30 ***Invited*** **Properties of Oxide-Semiconductor TFTs under Mechanical Strain for Flexible Electronics**

P. Heremans[,**,***], A. d. J. d. Meux[*,***], A. Tripathi[**], S. Steudel[*], G. Pourtois[*], G. Gelinck[**]*

[*]imec, Belgium
[**]Holst Ctr., The Netherlands
[***]Univ. of Leuven, Belgium

AMD5 - 2: 13:55 ***Invited*** **Novel Technologies for Source and Drain Resistance Reduction in Short-Channel Self-Aligned InGaZnO Thin-Film Transistors**

K. Sakuma[*], K. Ota[,**], T. Irisawa[*,***], C. Tanaka[*], K. Ikeda[*], D. Matsushita[*], M. Saitoh[*]*

[*]Toshiba, Japan
[**]imec, Belgium
[***]AIST, Japan

AMD5 - 3 14:20 **Advanced Compensation Technologies for Large-Size UHD OLED TVs**

S. Takasugi, H.-J. Shin, M.-K. Chang, S.-M. Ko, H.-J. Park, J.-P. Lee, H.-S. Kim, C.-H. Oh

LG Display, Korea

AMD5 - 4 14:40 **Dual-Gate Self-Aligned a-IGZO TFTs Using 5-Mask Steps**

M. Nag[,**], F. D. Roose[*,**], A. Bhoolokam[*,**], K. Myny[*], A. Kumar[***], S. Steudel[*], J. Genoe[*,**], W. Dehaene[**], G. Groeseneken[*,**], P. Heremans[*,**,***]*

[*]imec, Belgium
[**]Katholieke Univ. Leuven, Belgium
[***]Holst Ctr., The Netherlands

----- Break -----

15:10 - 16:20 **Ohmi 1**

AMD6: Oxide TFT: Solution Processes
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: T. D. Anthopoulos, Imperial College London, UK
Co-Chair: H. Kumomi, Tokyo Inst. of Tech., Japan

AMD6 - 1: 15:10 ***Invited*** **Oxide-Channel Ferroelectric-Gate Thin Film Transistors Prepared by Solution Process**

E. Tokumitsu, T. Shimoda

JAIST, Japan

AMD6 - 2: 15:35 ***Invited*** **Stable Metal Semiconductor Field Effect Transistors on Oxide Semiconductor Channels Grown via Mist-CVD**

G. T. Dang, T. Kawaharamura[*], M. Furuta[*], M. W. Allen

Univ. of Canterbury, New Zealand
[*]Kochi Univ. of Tech., Japan

AMD6 - 3 16:00 **Highly Reliable All-Printed Oxide TFT of High Work-Function Metal Electrodes with Low Contact Resistance by Doped Oxide Semiconductor**

Y. Hirano, S. Matsumoto, R. Saotome, Y. Sone, S. Arae, M. Kusayanagi, Y. Nakamura, N. Ueda, K. Yamada

Ricoh, Japan

----- Break -----

16:50 - 18:25 **Ohmi 1**

AMD7: Advanced Si Technologies

Chair: B. S. Bae, Hoseo Univ., Korea
Co-Chair: T. Noguchi, Univ. of the Ryukyus, Japan

AMD7 - 1: 16:50 ***Invited*** **Solution-Processed LTPS on Paper**

R. Ishihara[,**], M. Trifunovic[*], P. Sberna[*], T. Shimoda[**]*

[*]Delft Univ. of Tech., The Netherlands
[**]JAIST, Japan

AMD7 - 2: 17:15 ***Invited*** **Prospect of Low-Temperature Poly-Si, Poly-SiGe, Poly-Ge TFTs on Glass Substrate**

A. Hara, T. Meguro, Y. Nishimura, S. Nibe, H. Ohsawa

Tohoku Gakuin Univ., Japan

AMD7 - 3: 17:40 ***Invited*** **Smart Pixel TFT Circuits for High Image Quality AMOLED Displays**

O.-K. Kwon, K. Oh

Hanyang Univ., Korea

AMD7 - 4 18:05 **Appearance of p-Channel TFT Performance with Metal Source-Drain Using BLDA Aiming for Low-Cost CMOS**

T. Ashitomi, T. Harada, K. Shimoda, T. Okada, T. Noguchi, O. Nishikata[*]*, A. Ota*[*]*, K. Saito*[*]

Univ. of the Ryukyus, Japan
[*]ULVAC, Japan

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Thin Film Materials & Devices Meeting

Evening Get-Together with Wine

Tuesday, Dec. 8, 2015
18:00 – 20:00
Hiei (2F)
Otsu Prince Hotel
(Sponsored by Merck Ltd., Japan)
See page 12 for details

RECEPTION

Wednesday, Dec. 9, 2015
18:50 – 20:50
Prince Hall (3F)
Otsu Prince Hotel
See page 12 for details

Workshop on FPD Manufacturing, Materials and Components

Thursday, December 10

10:30 - 12:30 **Ohmi 6**

Poster **FMCp1: Materials and Components**

FMCp1 - 1 **Microstructure, Electric Properties and Chemical Bonds of Lead-Free Piezoelectric Thin Films**

C.-W. Su, C.-C. Chen, S.-Y. Chu, C.-C. Tsai[*], *C.-H. Hung*[**]

Nat. Cheng Kung Univ., Taiwan
[*]Tung Fang Design Univ., Taiwan
[**]Nat. Kaohsiung Normal Univ., Taiwan

FMCp1 - 2 **High Energy Density for Energy Harvesting Devices of $(Ba_{0.98}Ca_{0.02})(Ti_{0.94}Sn_{0.06})O_3$ Piezoelectric Ceramics Fabricated by SiO_2 Modified**

Z.-Y. Chen, C.-C. Tsai[*], *C.-S. Hong*[**], *S.-Y. Chu, W.-H. Chao, H.-H. Hsieh*[*]

Nat. Cheng Kung Univ., Taiwan
[*]Tung Fang Design Inst., Taiwan
[**]Nat. Kaohsiung Normal Univ., Taiwan

FMCp1 - 3 **Recrystallization of Single Crystal 6,13-bis(triisopropylsilylethynyl)pentacene within LC**

H.-B. Park, H.-T. Jang, J.-H. Kim, C.-J. Yu

Hanyang Univ., Korea

FMCp1 - 4 **Characterization of Two Dimensional MoS_2 Produced by RF-Sputtering and Thermal Evapration Methods**

Y. J. Kim, H.-N. Lee

Soonchunhyang Univ., Korea

FMCp1 - 5 **Slicing and Halftoning Algorithm for High Quality Color 3D Printing**

C.-I. Lin, Y.-P. Sie, T.-H. Lin, P.-L. Sun

Nat. Taiwan Univ. of S&T, Taiwan

10:30 - 12:30 **Ohmi 6**

Poster **FMCp2: Display Optics and Information Technologies**

FMCp2 - 1 **Emiflective Display with High Brightness Characteristics**

D.-M. Lee, S. I. Jo, Y.-J. Lee, J. H. Han, C.-J. Yu, J.-H. Kim

Hanyang Univ., Korea

FMCp2 - 2 **The Effect Phosphor-Gel Concentrations on the Extraction Light of White Light Emitting Diode**

T.-S. Zhan, C.-H. Chiang, K.-C. Cheng, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

FMCp2 - 3 **Improved Lumens per Watt Efficiency of LED Using Light Recycling Technology for Lighting Applications**

K. Li

Wavien, USA

10:30 - 12:30 **Ohmi 6**

Poster **FMCp3: Manufacturing Technologies**

FMCp3 - 1 **Issues and Developments of 1.2 µm Resolution Technologies for FPD Mass-Production**

N. Yabu, N. Izumi, Y. Nagai, T. Ooyanagi, M. Ando, K. Nagano

Canon, Japan

FMCp3 - 2 **Design Consideration on Optical Fiber Layout for Laser Backlight Applications**

T. Kojima, T. Zanka, I. Fujieda

Ritsumeikan Univ., Japan

FMCp3 - 3 **Fabrication of Quasi-Black Mask for LCDs by Selective Coating Technique Using an Electro-Spray Deposition Method**

Y. Kudoh, Y. Uchida, T. Takahashi

Kogakuin Univ., Japan

FMCp3 - 4 **Cell Slimming for Curved Display to Enhance Strength**

S.-M. Huang, J.-K. Lu, H.-K. Chang, W.-C. Wang, S.-K. Lin

AU Optronics, Taiwan

FMCp3 - 5 **Research on Effect of the Multi Factors to Improve via Etch Uniformity and Profile**

X. Chang, Z. Cao, Z. Wang, C. Gao, W. Deng, J. Gao*, B. Zhang, J. Lv*

Chongqing BOE Optoelect., China
**BOE Tech. Group, China*

10:30 - 12:30 **Ohmi 6**

Poster FMCp4: Film Technologies

FMCp4 - 1 **Darkness Colorimetry of VA-LCDs : Factors and Performance**

L.-X. Chen, C.-T. Kang

Shenzhen China Star Optoelect. Tech., China

FMCp4 - 2 **Growth of C_8-BTBT Films during Drop-Casting under an External Temperature Gradient**

N. Iizuka, T. Zanka, Y. Onishi, I. Fujieda

Ritsumeikan Univ., Japan

FMCp4 - 3 **Viewing Angle Control Device Based on Array of Optical Micro-Rods with High Aspect Ratio**

K. Shiota, M. Okamoto, H. Tanabe

NLT Techs., Japan

----- Lunch -----

16:00 - 17:00 **Ohmi 3**

FMC1: Materials and Components

Chair: R. Yamaguchi, Akita Univ., Japan
Co-Chair: T. Tomono, Toppan Printing, Japan

FMC1 - 1: 16:00 ***Invited*** **High-Speed On-Chip Light Emitters Based on Nanocarbon Materials**

H. Maki

Keio Univ., Japan

FMC1 - 2: 16:20 ***Invited*** **Liquid Crystals for High Performance Organic Field Effect Transistors**

J. Hanna, H. Iino, M. Kunii, T. Usui

Tokyo Inst. of Tech., Japan

FMC1 - 3 16:40 **Coating ZnO:Zn Nanoparticles with Alumina for Polymer Protection**

J. Silver, R. Li, G. R. Fern, P. Bishop, B. Thiebaut**

Brunel Univ. London, UK
**Johnson Matthey Tech. Ctr., UK*

----- Break -----

17:40 - 18:40 **Ohmi 3**

FMC2: Display Optics and Information Technologies

Chair: K. Kurokawa, Entegris Japan, Japan
Co-Chair: A. Fujita, JNC, Japan

FMC2 - 1: 17:40 ***Invited*** **Recent Progress of Visible Light Communication**

S. Haruyama

Keio Univ., Japan

FMC2 - 2: 18:00 ***Invited*** **Requirements for Diagnostic Monitors and Supporting Latest Image Processing Technologies**

Y. Bamba, M. Ogaki, M. Kita, S. Tokurei[,**], K. Shiotsuki[***], J. Morishita[*], A. Hayashi, Y. Ohoto*

EIZO, Japan
[*]Kyushu Univ., Japan
[**]Yamaguchi Univ. Hospital, Japan
[***]Oita Univ. Hospital, Japan

FMC2 - 3 18:20 **Panels with 99% Coverage of Adobe in LED Light Source Used Displays and Lifetime Estimation**

I.-H. Hsieh, S. CW. Wang, S. Hsieh

AU Optronics, Taiwan

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:20 **Ohmi 5**

FMC3: Manufacturing Technologies

Chair: T. Arikado, Tokyo Electron, Japan
Co-Chair: T. Nonaka, Merck Performance Materials, Japan

FMC3 - 1: 9:00 ***Invited*** **Planarized Stainless Steel Foil for Flexible Substrate**

N. Yamada, S. Yamaguchi, J. Nakatsuka[*], Y. Hagiwara, K. Uemura

Nippon Steel & Sumitomo Metal, Japan
[*]Nippon Steel & Sumikin Materials, Japan

FMC3 - 2: 9:20 ***Invited*** **High Resolution Printed Patterning by Using Seamless Roller Mold (SRM) Technology**

T. Tanaka, T. Kitada, M. Abe, N. Ito, M. Oshikata, M. Ataka[*], T. Kishiro[*], S. Matsui[**]

Asahi Kasei, Japan
[*]Holon, Japan
[**]Univ. of Hyogo, Japan

FMC3 - 3
9:40
Ultra Thin LTPS-TFT LCD by Using New Technology
C.-H. Liao, T.-C. Fan, M.-C. Tsai, L.-K. Chia, W.-S.Wang, C.-H. Chan, J.-K. Lu, N. Sugiura
AU Optronics, Taiwan

FMC3 - 4
10:00
Internal Stress and Shear Deformation in Glass during Static Push Test
K.-C. Chang, C.-Y. Chiu, Y.-C. Liu
G-Tech Optoelect., Taiwan

----- Break -----

10:40 - 11:40 **Ohmi 5**

FMC4: Film Technologies

Chair: Y. Yang, China Star Optoelect. Tech., China
Co-Chair: Y. Saitoh, FUJIFILM, Japan

FMC4 - 1
10:40
Control of Three Dimensional Birefringence of an Uniaxial Oriented Film by Using Two Different Types of Nanoparticles
K. Takatoh, M. Akimoto, N. Yasutomo[*]*, T. Abo*[*]
Tokyo Univ. of Sci. Yamaguchi, Japan
[*]*Kaneka, Japan*

FMC4 - 2
11:00
Development of Super Retardation Film (SRF) and Its Application to Substrates of Polarizing Plates
Y. Sasaki, K. Murata, T. Oya, T. Suzuki
Toyobo, Japan

FMC4 - 3
11:20
Simulation and Design of MIM Nanoresonators for Color Filter Applications
S. Banerjee
Sumitomo Chem., Japan

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

15:10 - 16:10 **Ohmi 9**

FMC5: Augmented Reality and Virtual Reality

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: K. Käläntär, Global Optical Solutions, Japan
Co-Chair: I. Amimori, SN Partners, Japan

FMC5 - 1: 15:10 ***Invited*** **Real-Time Dynamic Holographic 3D Display in Materials to Future Holographic 3D Televisions**

H. Gao, J. Liu, C. Zeng, Q. Yao, P. Liu, Y. Yu, H. Zheng, Z. Zeng

Shanghai Univ., China

FMC5 - 2: 15:30 ***Invited*** **Aerial Three-Dimensional Display Based on Retro-Reflective Optical Imaging**

D. Miyazaki, Y. Maeda[*], S. Onoda, Y. Tokubo, S. Murakami, R. Tamaki, T. Mukai

Osaka City Univ., Japan
[*]Parity Innovations, Japan

FMC5 - 3 15:50 **Polarization State Analysis for Polarized Aerial Imaging by Retro-Reflection (pAIRR)**

M. Nakajima[*], K. Onuki[*], I. Amimori[**], H. Yamamoto[,***]*

[*]Utsunomiya Univ., Japan
[**]SN Partners, Japan
[***]JST, CREST, Japan

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
Japan Electronics Packaging and Circuits Association
Japan Society of Colour Material
The Japanese Research Association for Organic Electronics Materials
The Japanese Society of Printing Science and Technology
RadTech Japan
The Society of Photography and Imaging of Japan
The Technical Association of Photopolymers, Japan

Workshop on EL Displays and Phosphors

Thursday, December 10

9:00 - 10:10 **Ohmi 2**

PH1: Phosphors for Lighting Application
Special Topics of Interest on Lighting Technologies

Chair: A. Meijerink, Utrecht Univ., The Netherlands
Co-Chair: K. Wani, TAZMO, Japan

PH1 - 1: 9:00 ***Invited*** **High Directional LED Lighting for Forming Pattern, HOLOLIGHT: Its Business Developments and Prospects**

T. Ikeda

Pi Photonics, Japan

PH1 - 2: 9:25 ***Invited*** **The GE TriGain Phosphor Based upon $K_2SiF_6:Mn^{4+}$ and Its Use in LED Lighting and LCD Backlights**

A. A. Setlur, F. Garcia, J. E. Murphy, S. P. Sista

GE Global Res., USA

PH1 - 3 9:50 **The Synthesis, Characterisation and Potential of Eu^{3+} Doped Molybdate Phosphors for White Light Emitting Diodes**

A. Lipman, M. Fathullah, R. Stone, G. R. Fern, T. Ireland, C. Frampton, J. Silver

Brunel Univ. London, UK

----- Break -----

10:30 - 12:30 **Ohmi 6**

Poster PHp1: Phosphors

PHp1 - 1 **Photoluminescence Study of Symmetry-Related Transitions in the Spectrum of $Y_2O_3:Tb^{3+}$**

D. D. Engelsen, J. Silver, T. G. Ireland, G. R. Fern, P. G. Harris

Brunel Univ. London, UK

PHp1 - 2 **Blue and Red Cathodoluminescent Emission of Y_2O_3:Eu Phosphor Studied as a Function of Temperature in a Transmission Electron Microscope**

G. R. Fern, A. Lipman, J. Silver, A. Howkins, T. Ireland

Brunel Univ. London, UK

PHp1 - 3 **Color Conversion and Brightness Enhancement Films with Cd-Free Quantum Dots and High Refractive Index Composite for Blue LED Backlight**

C. M. Lee, H. J. Kang, H. Chae

Sungkyunkwan Univ., Korea

PHp1 - 4 **Multiple Quantum Dot Layers by Electrospray Method for White Light Emitting Diodes**

J. Jeong, N. Kim, H. Chae

Sungkyunkwan Univ., Korea

PHp1 - 5 **Synthesis and characterization of ZnS:Mn Quantum Dot and Evaluation for Its Display Applications**

B.-G. Hwang, H.-N. Lee

Soonchunhyang Univ., Korea

PHp1 - 6 **Photoluminescence Properties of ZnO Nanorods on AZO Substrates Synthesized by Different Methods**

C. Li, S. Hou

Kochi Univ. Tech., Japan

PHp1 - 7 **Enhancement of Powder EL Performance by Mixing Two Kinds of ZnS Phosphors with Donor or Acceptor Type Activator**

K. Wani, T. Kanda, E. Hashimoto

TAZMO, Japan

10:30 - 12:30 **Ohmi 6**

Poster **PHp2: Phosphors for Lighting Application**
Special Topics of Interest on Lighting Technologies

PHp2 - 1 **The Enhancement on Photoluminescence Characteristics of $Ba_{1-x}ZrSi_3O_9:xEu^{2+}$ Phosphors by Sr^{2+} Substituting**

K.-C. Cheng, C.-H. Chiang, T.-S. Zhan, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

PHp2 - 2 **Effects of Fluxes on Luminescent Properties of YAG:Ce Phosphors and Their Application to White Light-Emitting Diodes**

C.-H. Chiang, T.-S. Zhan, K.-C. Cheng, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

PHp2 - 3 **High Directivity Light Source Based on Photonic Crystal Structure**

C. C. Chiu, F.-L. Hsiao

Nat. Changhua Univ. of Education, Taiwan

PHp2 - 4 **Synthesis and Luminescent Properties of Novel Ce^{3+}- and Eu^{2+}-Doped $La_3Br(SiS_4)_2$ Bromothiosilicate Phosphors for White LEDs**

S.-P. Lee, T.-M. Chen

Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

16:00 - 17:10 **Ohmi 2**

PH2: Phosphor for General

Chair: A. A. Setlur, GE Global Res., USA
Co-Chair: R.-J. Xie, NIMS, Japan

PH2 - 1: 16:00 ***Invited*** **Light from Lanthanides**

A. Meijerink

Utrecht Univ., The Netherlands

PH2 - 2: 16:25 ***Invited*** **Chemical Control of Crystal Structure and Photoluminescence in Oxonitridosilicate Phosphors**

R.-S. Liu

Nat. Taiwan Univ., Taiwan

PH2 - 3 16:50 **Studies on the Infrared Emitting ZnCdS:Cu, In, Cl Phosphors -Phosphors for Marking, Coding, and Identification-**

J. Silver, P. J. Marsh, G. R. Fern

Brunel Univ. London, UK

----- Break -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:10 **Ohmi 8**

PH3: Phosphor Application

Chair: J. Silver, Brunel Univ. London, UK
Co-Chair: R.-S. Liu, Nat. Taiwan Univ., Taiwan

PH3 - 1 9:00 **Inverted Quantum Dot Light-Emitting Diodes with CdSe/ZnS and $CuInS_2$/ZnS Quantum Dots**

M. Hishinuma, J. Maki, T. Fukuda, N. Kamata, Z. Honda

Saitama Univ., Japan

PH3 - 2: 9:20 ***Invited*** **Polarized Emission of Quantum Rods Dispersed Nanofiber Sheet**

M. Hasegawa, Y. Hirayama, S. Dertinger

Merck, Japan

PH3 - 3: 9:45 ***Invited*** **Recent Progress on the Quantum Dot LED Technology for Display Applications**

C. Lee

Seoul Nat. Univ., Korea

----- Break -----

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

Supporting Organizations:
The 125th Research Committee on Mutual Conversion between Light and Electricity, Japan Society for Promotion of Science
Phosphor Research Society, The Electrochemical Society of Japan

Late-News Papers

Due Sep. 24, 2015
Submit a two-page camera-ready manuscript
via IDW website:
http://www.idw.or.jp/latenews.html

Final Program

The final program of IDW '15 will be available on the website (http://www.idw.or.jp/) from the middle of November.

Workshop on Field Emission Displays, CRTs and Plasma Displays

Friday, December 11

10:40 - 10:45 **Ohmi 3**

Opening

Opening Remarks
10:40
H. Mimura, Shizuoka Univ., Japan

10:45 - 12:25 **Ohmi 3**

FED1: Advanced Technologies and FE Mechanism

Chair: M. Nagao, AIST, Japan
Co-Chair: Y. Neo, Shizuoka Univ., Japan

FED1 - 1: 10:45 ***Invited*** **Coherent Electron Emission Source: Single-Atom Electron Source**
C. Oshima
Waseda Univ., Japan

FED1 - 2 11:25 **Field Emission Characteristics from Molybdenum (100) Surface with Thin Yttrium Oxide Layer**
*T. Kawakubo, T. Kitani, H. Nakane**
Nat. Inst. of Tech. Kagawa College, Japan
**Muroran Inst. of Tech., Japan*

FED1 - 3 11:45 **Deposition of Glycine Molecules on Tungsten Emitter and Observation of Its Surface with Field Ion Microscope**
N. Nyuba, M. Okada, H. Tsuji, Y. Gotoh
Kyoto Univ., Japan

FED1 - 4 12:05 **Surface Activation of GaAs Photocathode and Its Photoemission Characteristics**
T. Masuzawa, K. Mitsuno, Y. Hatanaka, Y. Neo, H. Mimura
Shizuoka Univ., Japan

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 15:10 **Ohmi 3**

FED2: FEA Fabrication Process and Novel Materials

Chair: F. Wakaya, Osaka Univ., Japan
Co-Chair: H. Shimawaki, Hachinohe Inst. Tech., Japan

FED2 - 1
13:30
Revised Fabrication of Volcano-Structured Double-Gate Spindt-Type FEA

M. Nagao, Y. Gotoh[*], T. Masuzawa[**], Y. Neo[**], H. Mimura[**]

AIST, Japan
[*]Kyoto Univ., Japan
[**]Shizuoka Univ., Japan

FED2 - 2
13:50
Effect of Electrode Geometry on Focusing Property of Volcano-Structured Double-Gate Spindt-Type FEAs

Y. Gotoh, H. Tsuji, M. Nagao[*]

Kyoto Univ., Japan
[*]AIST, Japan

FED2 - 3
14:10
Electrostatic-Focusing FEA-HARP Image Sensor with Volcano-Structured Spindt-Type FEA

Y. Honda[,**], M. Nanba[*], K. Miyakawa[*], M. Kubota[*], M. Nagao[***], Y. Neo[**], H. Mimura[**], N. Egami[****]*

[*]NHK, Japan
[**]Shizuoka Univ., Japan
[***]AIST, Japan
[****]Kinki Univ., Japan

FED2 - 4
14:30
Field Emission from Volcano-Structured Silicon Field Emitter Arrays under Pulsed Laser Illumination

H. Shimawaki, M. Nagao[*], Y. Neo[**], H. Mimura[**], F. Wakaya[***], M. Takai[***]

Hachinohe Inst. of Tech., Japan
[*]AIST, Japan
[**]Shizuoka Univ., Japan
[***]Osaka Univ., Japan

FED2 - 5
14:50
Fabrication of GOS (Graphene/Oxide/Semiconductor) Type Electron Emission Devices

S. Tanaka, K. Murakami, M. Nagao[*], J. Fujita

Univ. of Tsukuba, Japan
[*]AIST, Japan

----- Break -----

15:20 - 16:00 **Ohmi 3**

FED3: Flexible Light Source Using Plasma Technologies

Chair: H. Kajiyama, Tokushima Bunri Univ., Japan
Co-Chair: T. Shiga, Univ. of Electro-Commun., Japan

FED3 - 1
15:20
A Mechanism of Photochromic Transition of Semiconductor Nanoparticles

H. Kajiyama, K. Uchino[*], K. Takata[**], S. Inoue[***]

Tokushima Bunri Univ., Japan
[*]Kyushu Univ., Japan
[**]Kansai Univ., Japan
[***]Hiroshima Univ., Japan

FED3 - 2
15:40
Pulse Lighting Effect on the Photosynthesis of Leaf Vegetables

S. Nagahara, T. Kono, S. Funai, H. Kajiyama

Tokushima Bunri Univ., Japan

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
JSPS 158th Committee on Vacuum Nanoelectronics
Technical Meeting on Plasma Science and Engineering

Workshop on OLED Displays and Related Technologies

Wednesday, December 9

13:30 - 14:50 **Ohmi 1**

OLED1: Advanced OLED Technologies I

Chair: K. Monzen, Nissan Chem., Japan
Co-Chair: T. Wakimoto, Merck, Japan

OLED1 - 1: 13:30 ***Invited*** **Recent Progress on the Understanding of Molecular States in OLED Films: Molecular Orientation, Packing, and Mixing**

D. Yokoyama

Yamagata Univ., Japan

OLED1 - 2: 13:50 ***Invited*** **Recent Advances in Understanding of the Electronic Processes in OLEDs**

J.-J. Kim

Seoul Nat. Univ., Korea

OLED1 - 3 14:10 **Durability of Flexible Display Using Air-Stable Inverted Organic Light-Emitting Diodes**

T. Tsuzuki, G. Motomura, Y. Nakajima, T. Takei, H. Fukagawa, T. Shimizu, M. Seki[*]*, K. Morii*[**]*, M. Hasegawa*[**]*, T. Yamamoto*

NHK, Japan
[*]NHK Eng. Sys., Japan
[**]Nippon Shokubai, Japan

OLED1 - 4 14:30 **Lifetime Enhancement in Blue OLED at Single and Multi-Stacking System**

M.-H. Hsin, Y.-C. Chen, Y.-H. Chen, P.-Y. Chen, H.-H. Lu, Y.-H. Lin

AU Optronics, Taiwan

----- Break -----

15:10 - 16:30 **Ohmi 1**

OLED2: OLED for Lighting Applications
Special Topics of Interest on Lighting Technologies

Chair: Y. Kijima, JOLED, Japan
Co-Chair: H. Kuma, Idemitsu Kosan, Japan

OLED2 - 1: 15:10 ***Invited*** **Recent Advances in OLED Lighting**

M. Boesing, F. Lindla, A. Koehnen, V. Gohri, M. Ruske, E. Meulenkamp, M. Boroson[*]

Philips Business Ctr. OLED Lighting, Germany
[*]OLEDWorks, USA

OLED2 - 2 15:30 **Blue Light Efficiency Enhancement of OLED by Thin Film Included Micro-Particles and Copper Sulfate Solution**

C.-H. Chiu, W.-C. Chien, C.-H. Chien*, Y.-H. Chen**

Chunghwa Picture Tubes, Taiwan
**Tatung Univ., Taiwan*

OLED2 - 3 15:50 **High Efficient and Stable Quantum Dots Film with Interdiffused Structure as Down-Conversion Material Utilized in Blue Organic Light Emitting Diode for Solid-State Lighting Application**

V. Arasu, D. Jo, B. Kim, H. Chung

Sungkyunwan Univ., Korea

OLED2 - 4 16:10 **Fabrication of High Efficiency Color-Conversion Layer for Hybrid OLED Lighting**

B. Kim, D. Jo, D. Yoon, H. Chung

Sungkyunkwan Univ., Korea

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:00 **Ohmi 1**

OLED3: OLED Materials

Chair: T. Ikuta, JNC Petrochem., Japan
Co-Chair: S. Naka, Univ. of Toyama, Japan

OLED3 - 1: 9:00 ***Invited*** **Molecular Design of High Efficiency Thermally Activated Delayed Fluorescent Emitters**

D. R. Lee, S. K. Jeon, W. Song, J. Y. Lee

Sungkyunkwan Univ., Korea

OLED3 - 2 9:20 **Improvement Efficiency of Blue Fluorescence Device with TADF Host Material**

W. Song, J. Y. Lee

Sungkyunkwan Univ., Korea

OLED3 - 3 9:40 **UV-Ozone-Treated Ultra-Thin Li-Doped NiO Film as Anode Buffer Layer on Organic Light Emitting Diodes**

H.-W. Lu, P.-C. Kao, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

----- Break -----

10:30 - 12:30 **Ohmi 6**

Poster OLEDp1: OLED Poster

OLEDp1 - 1 **Flexible OLED Lighting Panel with Capacitive Coupling Wireless Power Supply**

Y. Murozono, R. Hattori, T. Yagi[*], K. Omata[*]

Kyushu Univ., Japan
[*]Konica Minolta, Japan

OLEDp1 - 2 **Inorganic High Gas Barrier Films Deposited by PECVD Using a Novel Precursor, TG-4E, for OLED Devices**

H. Chiba, K. Tokuhisa

Tosoh, Japan

OLEDp1 - 3 **Fabrication and Analysis of Tandem-Structure Dual-Function Photovoltaic Organic Light Emitting Diodes**

D.-J. Kim, H.-N. Lee

Soonchunhyang Univ., Korea

OLEDp1 - 4 **The Application of Cyclic Tryphenylamine Compounds to Wet-Processable OLED**

K. Ishitsuka, T. Sugioka, S. Funyuu, H. Sawamoto[*], R. Ohata[*], K. Ogino[*]

Hitachi Chem., Japan
[*]Tokyo Univ. of A&T, Japan

OLEDp1 - 5 **Vertical Organic Light Emitting Transistors in the Presence of Various ETL Materials**

S. I. Yoo[*], J. W. Kim[*], J. S. Kang[*], G. J. Yoon[*], W. Y. Kim[,**]*

[*]Hoseo Univ., Korea
[**]McMaster Univ., Canada

OLEDp1 - 6 **Energy Transfer of Triplet Excitons between EML and ETL Materials in Single Emissive White Phosphorescent OLEDs with Three Primary Colors**

J. W. Kim[*], S. I. Yoo[*], J. S. Kang[*], G. J. Yoon[*], S. E. Lee, Y. K. Kim, W. Y. Kim[*]

Hongik Univ., Korea
[*]Hoseo Univ., Korea

OLEDp1 - 7 **Fabrication of Multi-Layer Inverted Organic Light Emitting Diodes by a Spin Coating Method**

J. Hasegawa[*], M. Takada[*], T. Nagase[,**], T. Kobayashi[*,**], H. Naito[*,**]*

[*]Osaka Pref. Univ., Japan
[**]The Res. Inst. for Molecular Elect. Devices, Japan

OLEDp1 - 8 **High-Efficiency and Color Tunable Hybrid White OLED Devices**

H.-L. Huang, B. Balaganesan, H.-M. Kuo, C.-J. Lin, T.-C. Chao

eRay Optoelect. Tech., Taiwan

OLEDp1 - 9 **Optimization of Organic Photodetector Using OLED Lighting Device**

J. S. Kang[*], S. I. Yoo[*], J. W. Kim[*], G. J. Yoon[*], W. Y. Kim[,**]*

[*]Hoseo Univ., Korea
[**]McMaster Univ., Korea

OLEDp1 - 10 **A Green Thermally Activated Delayed Fluorescent Material Based on Dual Emitting Core Design**

H.-M. Kim, J.-Y. Lee

Sungkyunkwan Univ., Korea

OLEDp1 - 11 **Electrooptic Characteristics of Organic Light Emitting Diode Using an Index Mitigating Scattering Layer**

H. Jung, T. W. Gong, J. S. Gwag

Yeungnam Univ., Korea

OLEDp1 - 12 **Enhancement of OLED Light Extraction Efficiency with Patterned Structure and Micro-Lens Array**

Z. Zhang, B. Kim, H. Chung

Sungkyunkwan Univ., Korea

OLEDp1 - 13 **AC-Operated Electrochemiluminescent Device Containing Ruthenium(II) Complex with High Emission Intensity and Long Device Lifetime**

S. Tsuneyasu, K. Ichihara, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

----- Lunch -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:00 **Ohmi 2**

OLED4: Advanced OLED Technologies II
Special Topics of Interest on Printed Electronics

Chair: T. Komatsu, JOLED, Japan
Co-Chair: T. Fukuda, Saitama Univ., Japan

OLED4 - 1
9:00
Solution-Processed All Phosphorescent Small Molecule White Multi-OLED System

K. Oikawa, T. Iwasaki, T. Tsujimura, Y.-J. Pu[*], T. Chiba[*], S. Ohisa[*], J. Kido[*]

Konica Minolta, Japan
[*]Yamagata Univ., Japan

OLED4 - 2
9:20
Novel Materials for Highly Efficient Long-Lived Solution-Processed Phosphorescent Red OLED Devices

A. Hayer, P. Stoessel, N. Koenen, H. Heil, P. Levermore, B. Burkhart, K. Stegmaier, E. Böhm, H. Buchholz

Merck KGaA, Germany

OLED4 - 3
9:40
OLED Dry Film Uniformity Compensation by Inkjet Process

C.-Y. Lin, C.-Y. Lo

Nat. Tsing Hua Univ., Taiwan

----- Break -----

10:40 - 12:00 **Ohmi 2**

OLED5/FLX3: Flexible OLED and OTFT

Chair: Y. Sakai, Mitsubishi Chem. S&T Res. Ctr., Japan
Co-Chair: T. Kamata, AIST, Japan

OLED5/ FLX3 - 1: 10:40
Invited **Flexible OLED Fabricated with Fully R2R Process and Their Evaluation Technology**

Y. Mitamura, T. Minakata, A. Sugimoto, M. Tanamura, Y. Ohzu, A. Suzuki, N. Ibaraki, H. Tomiyasu

Chem. Materials Evaluation & Res. Base, Japan

OLED5/ FLX3 - 2 11:00
Accurate Evaluation of Water Vapor Transmission for Flexible OLEDs

A. Suzuki, A. Uehigashi

Chem. Materials Evaluation & Res. Base, Japan

OLED5/ FLX3 - 3 11:20 **Modelling of Improved Power Consumption in a Smartphone Display with Very Low Leakage Current Organic Semiconductor Backplane**

J. Carter, C. Watson, K. Crowley, M. A. Cowin

SmartKem, UK

OLED5/ FLX3 - 4 11:40 **Solution Processed P-Type Top-Gate Small-Molecular Organic TFT**

H.-C. Hsiao, Z.-X. Jiang, S. Su, H.-Y. Xu, M. Zeng, B. Sun, C.-Y. Lee, H. Zhou[*]*, S. Zhang*[*]

China Star Optoelect. Tech., China

[*]*Peking Univ., China*

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

Supporting Organizations:
The Japanese Society of Printing Science and Technology
The Society of Photography and Imaging of Japan

Workshop on 3D/Hyper-Realistic Displays and Systems

Thursday, December 10

9:00 - 10:20 **Ohmi 9**

3D1: Holography

Chair: M. Date, NTT, Japan
Co-Chair: T. Koike, Hosei Univ., Japan

3D1 - 1: 9:00 ***Invited*** **Occlusion Processing in Computer Holography - With a Focus on Switch-Back Technique -**

K. Matsushima

Kansai Univ., Japan

3D1 - 2: 9:20 ***Invited*** **Electronic Holography Using Multiple Spatial Light Modulators**

H. Sasaki, K. Wakunami, Y. Ichihashi, R. Oi, T. Senoh, K. Yamamoto

NICT, Japan

3D1 - 3 9:40 **Moire Noise Reduction in the Off-Axis Holographic Display**

W. Seo, J. Seo, H. Song, J. An, G. Sung, S. Kim, C.-S. Choi, H. Kim, Y.-T. Kim, Y. Kim, H.-S. Lee, S. Hwang

Samsung Advanced Inst. of Tech., Korea

3D1 - 4: 10:00 ***Invited*** **Lensless Holographic Projection and Its Related Work**

T. Shimobaba, Y. Nagahama, T. Kakue, T. Ito

Chiba Univ., Japan

----- Break -----

10:30 - 12:30 **Ohmi 6**

Poster 3Dp1: 3D/Hyper-Realistic Displays

3Dp1 - 1 **Optical Design of the Stereo Imaging Capsule Endoscopy System**

C.-H. Lin, K.-Y. Hsu, C.-Y. Chen, B.-S. Lin[*], P.-J. Wu[*]

Nat. Yunlin Univ. of S&T, Taiwan
[*]Nat. Chiao Tung Univ., Taiwan

3Dp1 - 2 **Waving-Hand Steganography on Aerial LED Screen Formed with AIRR**

M. Takahashi[*], H. Yamamoto[,**]*

[*]Utsunomiya Univ., Japan
[**]JST, CREST, Japan

3Dp1 - 3 **A Proposal for Objective Evaluation System for Optical and Electro-Optical Characteristics of See-Through Type Near-Eye Display Devices**

Y. Tang, Y. Yang, Y. Zheng, X. Li, B. Wang
Southeast Univ., China

3Dp1 - 4 **Comparisons of Viewing Depth Enhancement in Integral Imaging System Operated with Double Lens Arrays and Double Liquid Crystal Lens Arrays**

W.-Y. Lu, C.-R. Sheu
Nat. Cheng Kung Univ., Taiwan

3Dp1 - 5 **Depth Evaluation from Monocular Motion Parallax by Passive Head Movement with Different Amplitudes**

K. Oko, S. Yamada, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3Dp1 - 6 **How to Converge Long Wave-Length Sound by Small-Aperture Crossed-Mirror Array**

R. Kujime[*], H. Mizushina[,**], S. Suyama[*], H. Yamamoto[*,**]*
[*]Tokushima Univ., Japan
[**]Utunomiya Univ., Japan

3Dp1 - 7 **Multi-Image Arc 3D Display with Narrow Scratches by Using Non-Overlapping Method at Cross Points**

S. Nishiyama, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3Dp1 - 8 **Wide Vertical Viewing Zone in Arc DFD (Depth-Fused 3D) Display**

K. Yoshioka, S. Nishiyama, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3Dp1 - 9 **Stereoscopic Display by Using a New Radial Parallax Barrier for All Surrounding Viewpoints**

R. Ozaki, H. Yamamoto[*], H. Mizushina, S. Suyama
Tokushima Univ., Japan
[*]Utsunomiya Univ., Japan

3Dp1 - 10 **An Autostereoscopic Display Combining Parallax Barrier and Volumetric Images Using Non-Negative Edge Filter**

B. Yu, H. Kakeya
Univ. of Tsukuba, Japan

3Dp1 - 11 **Rendering Architecture for Photorealistic Simulation of Light Field Display**

T. Koike

Hosei Univ., Japan

3Dp1 - 12 **Tunable Magnification of Fourier Hologram by Using a Zoom Lens**

S.-K. Lin, W.-C. Su

Nat. Changhua Univ. of Education, Taiwan

3Dp1 - 13 **Improvement of Reconstructed Image Quality of 3D Display Using 1D Phase Modulation SLM by Iterative Fresnel Method**

R. Toritani, K. Masuda, P. Xia, K. Nitta, O. Matoba

Kobe Univ., Japan

3Dp1 - 14 **Improvement of Image Quality of Three-Dimensional Display Using a Binary Phase Distribution**

K. Masuda, Y. Saita, R. Toritani, P. Xia, K. Nitta, O. Matoba

Kobe Univ., Japan

3Dp1 - 15 **A Naked-Eye 3D Display Using Liquid Crystal Lenticular Lens with Low Cell Gap**

J. Chen, Q. Liao, Q. Wei, C.-M. Yang, C.-Y. Lee, A. Lien[*]

Shenzhen China Star Optoelect. Tech., China
[*]TCL Corporate Res., China

3Dp1 - 16 **A Novel Driving System for AMOLED 3D Display**

Y. Jin, S.-S. Syu, M.-J. Jou

Shenzhen China Star Optoelect. Tech., China

3Dp1 - 17 **Developing a Quality Normal Map Acquisition Device Based On LED Array**

C.-H. Wang, Y.-L. Liu, T.-H. Lin

Nat. Taiwan Univ. of S&T, Taiwan

----- Lunch -----

16:00 - 17:25 **Ohmi 9**

3D2/LCT3: Autostereoscopic 3D Displays

Chair: Y. Kuroki, Confort Vision Res. Lab., Japan
Co-Chair: S. Oka, Japan Display, Japan

3D2/LCT3 - 1: 16:00 ***Invited*** **LC GRIN Lens Technology for Multi-Functional 3D Display**

S. Uehara

Toshiba, Japan

3D2/ LCT3 - 2 16:25 **Video Capable Dual-Layer Autostereoscopic Display with Motion Parallax**

H. Suginohara, M. Sugano, K. Minami

Mitsubishi Elec., Japan

3D2/ LCT3 - 3 16:45 **Resolution Multiplication Method for Autostereoscopic 3D Display**

F. Mukhtarov, S. D. Hwang

Samsung Elect., Korea

3D2/ LCT3 - 4 17:05 **Wide Viewing Angle Autostereoscopic 3D Display with Eye-Tracking System**

Y. Hyodo, S. Oka, T. Koito, H. Sugiyama, Y. Maede, T. Ochiai, T. Takahashi, S. Komura

Japan Display, Japan

----- Break -----

17:40 - 19:00 **Ohmi 9**

3D3: Wavefront/Light Field Recording and Rendering

Chair: T. Shimobaba, Chiba Univ., Japan
Co-Chair: J. Arai, NHK, Japan

3D3 - 1 17:40 **Acceleration of Computer-Generated Hologram by Optimizing Arrangement of Wavefront Recording Planes**

N. Hasegawa, T. Shimobaba, T. Kakue, T. Ito

Chiba Univ., Japan

3D3 - 2 18:00 **Fast Calculation of Stereoscopic Viewpoints via Fourier Slice Transformation**

J. Zhao[*], J. Xia[*], C. Chen[*], Z. Yang[**], J. Chen[**]

[*]Southeast Univ., China
[**]China Star Optoelect. Tech., China

3D3 - 3 18:20 **Light Field Subpixel Rendering Framework on Special Subpixel Structures**

J. Park, D.-K. Nam

Samsung Elect., Korea

3D3 - 4 18:40 **Increased Perspective Size of Light Field Cameras Using a Reflector System**

K. Li

Wavien, USA

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:20 **Ohmi 9**

3D4/VHF6: Autostereoscopic and Head-Mounted Displays
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: Y. Takaki, Tokyo Univ. of A&T, Japan
Co-Chair: S. Uehara, Toshiba, Japan

3D4/VHF6 - 1 9:00
HaptoMIRAGE: An Active-Shuttered Real Imaged Auto-Stereoscopic Display
Y. Ueda, H. Nii[*], K. Minamizawa, S. Tachi[**]
Keio Univ., Japan
[*]IIJ Innovation Inst., Japan
[**]Univ. of Tokyo, Japan

3D4/VHF6 - 2 9:20
Dual Orthogonal Flat Panel Autostereoscopic Display Using Visible Gap Contraction Prism
H. Imai, N. Takanashi
NEC, Japan

3D4/VHF6 - 3 9:40
Sense of Height and Virtual Body in Head-Mounted Display Environments
T. Shibata, T. Inoue[*]
Tokyo Univ. of Social Welfare, Japan
[*]Kanagawa Inst. of Tech., Japan

3D4/VHF6 - 4 10:00
Development of Poor Man's 3D-AR Platform for Amateur Game Creators
Y. Yoneda, H. Kiriyama, K. Iwasaki, E. Dong, K. Takemura, R. Urushihara[*], T. Fujita
Tokyo Inst. of Tech., Japan
[*]Ochanomizu Univ., Japan

----- Break -----

10:40 - 12:00 **Ohmi 9**

3D5: 3D/Hyper-Realistic Display Systems
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: H. Sasaki, NICT, Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D5 - 1: 10:40
Invited **2D/3D Compatible Microstereopsis Display Using Patterned Retarder 4KTV**
Y. Kuroki
Comfort Vision Res. Lab., Japan

3D5 - 2: 11:00 ***Invited*** **See-Through Three-Dimensional Displays with Motion Parallax for Precise Image Superposition**

Y. Takaki

Tokyo Univ. of A&T, Japan

3D5 - 3: 11:20 ***Invited*** **See-Through Projection System**

T. Higuchi, T. Yoshikawa, K. Hashikawa, M. Akagi, T. Yoshizawa, K. Iwawaki, Y. Ito, H. Kogoma, N. Saegusa

Pioneer, Japan

3D5 - 4: 11:40 ***Invited*** **Floating Image Display Based on a Dihedral Corner Reflector Array**

Y. Maeda

Parity Innovations, Japan

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 14:50 **Ohmi 9**

3D6: Floating and Omnidirectional Display Systems

Chair: Y. Maeda, Parity Innovations, Japan
Co-Chair: K. Yamamoto, NICT, Japan

3D6 - 1 13:30 **Evaluation Method of Sharpness on Aerial Image Formed with AIRR**

N. Kawagishi[,**], H. Yamamoto[*]*

[*]Utsunomiya Univ., Japan
[**]Yazaki, Japan

3D6 - 2 13:50 **Aerial Imaging by Retro-Reflection with Transparent Retro-Reflector (AIRR with TRR)**

Y. Tokuda[,**], K. Onuki[*], M. Takahashi[*], S. Onose[*], T. Okamoto[*], M. Hirose[**], H. Yamamoto[*,***]*

[*]Utsunomiya Univ., Japan
[**]Univ. of Tokyo, Japan
[***]CREST, Japan

3D6 - 3 14:10 **Superimposed 3D Display Viewable from 360 Degrees**

H. Kato, T. Yendo

Nagaoka Univ. of Tech., Japan

3D6 - 4 14:30 **A Method to Make 360 Degree Contents for Realistic 3D Image Display Using Direct Light Scanning**

X. Luo, H. Horimai, X. Tan*

Beijing Inst. of Tech., China
**3Dragons, Japan*

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
Holographic Display Artists and Engineers Club (HODIC),
The Optical Society of Japan
Technical Group on Three-Dimensional Image Technology, ITE

IDW ’15 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, Dec. 8, 2015
Ohmi 10 (2F)
Otsu Prince Hotel

Detailed information is available on
http://www.sid-japan.org/

EXHIBITION

12:00 – 17:00 Wednesday, Dec. 9
10:00 – 18:00 Thursday, Dec. 10
10:00 – 14:00 Friday, Dec. 11

Lobby (2F)
Otsu Prince Hotel

Free admission with your registration name tag

Workshop on Applied Vision and Human Factors

Wednesday, December 9

13:30 - 14:40 **Ohmi 7**

VHF1: Display Metrology

Chair: J. Bergquist, Nokia, Japan
Co-Chair: N. Hiruma, NHK, Japan

VHF1 - 1: 13:30 ***Invited*** **Metric for Quantifying Relative Display Gamut Size**

K. Masaoka

NHK, Japan

VHF1 - 2 14:00 **Characterization of the Spectral BRDF & BTDF of Optical Components for Displays and Lightings**

P. Boher, T. Leroux, V. Collomb-Patton, T. Bignon

ELDIM, France

VHF1 - 3 14:20 **Near-Field Analysis on Curved AMOLED Display by Directional Imaging Photometric Measurements**

S.-W. Hsu, Z.-Y. Chung

ITRI, Taiwan

----- Break -----

15:10 - 16:10 **Ohmi 7**

VHF2: Display Image Quality

Chair: T. Kurita, NHK Media Tech., Japan
Co-Chair: K. Sakamoto, Panasonic, Japan

VHF2 - 1 15:10 **Image Quality Comparison between ULED and OLED Based on Perception Study**

J. Wang, J. Cao[*]*, X. Li, W. Liu*[*]*, J. Yang*[*]*, S. Huang*[*]*, Y. Zhang*[*]*, S. Gao*[*]

Southeast Univ., China
[*]*Hisense Elec., China*

VHF2 - 2 15:30 **High Visual Performance of Transparent Liquid Crystal Display by Using Image Optimization**

C.-T. Su, C.-W. Su, J.-T. Lien

Chunghwa Picture Tubes, Taiwan

VHF2 - 3 15:50 **An Algorithm of Backlight Mura Reduction for Direct-Lit LEDs**

P. S. Kuo, Y. H. Fu, W. Q. Zhao, H. Zhang, J. W. He, L. W. Chu, Y. Y. Chen

Shenzhen China Star Optoelect. Tech., China

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:10 **Hiei**

VHF3: Human Factors

Chair: Y. Hisatake, Japan Display, Japan
Co-Chair: T. Shibata, Tokyo Univ. of Social Welfare, Japan

VHF3 - 1: 9:00 ***Invited*** **Aging of the Eye and Vision Centered Design of Display**

T. Kawamorita

Kitasato Univ., Japan

VHF3 - 2 9:30 **Visual Characteristics of After-Image under Dark Surround Conditions**

*H.-C. Li, P.-L. Sun, R. Luo**

Nat. Taiwan Univ. of S&T, Taiwan
**Univ. of Leeds, UK*

VHF3 - 3 9:50 **Cosmetic Color Mapping Technology Applying to Facial Images**

L. Lu, Y.-P. Pi, H.-S. Chen

Nat. Taiwan Univ. of S&T, Taiwan

----- Lunch -----

13:40 - 15:40 **Ohmi 6**

Poster VHFp1: Applied Vision and Human Factors

VHFp1 - 1 **Verification of the Personal Authentication Using the Hand Shape Image That Holds the Doorknob**

Y. Ueda, F. Saitoh

Gifu Univ., Japan

VHFp1 - 2 **Study of User Interface Using Cursor Operation Based on Iris Position in Eye Area**

K. Ohshima, F. Saitoh

Gifu Univ., Japan

VHFp1 - 3 **Image Template Matching Based Order of Image Density in Local Area**

T. Sugiyama, F. Saitoh

Gifu Univ., Japan

VHFp1 - 4 **Extraction of Handwriting Lines from Document Images Based on Concentration Variance of the Local Area**

Y. Note, F. Saitoh

Gifu Univ., Japan

VHFp1 - 5 **Outdoor Display Performance Predictions Using Spectral BRDF Measurements**

P. Boher, T. Leroux, T. Bignon, V. Collomb-Patton

ELDIM, France

VHFp1 - 6 **Development and Application of Hyperspectral Two-Dimension Display**

*M. Saika, K. Yoshida, T. Satoh, M. Yamada, J. Ichimura, K. Uchikawa**

Topcon, Japan
**Tokyo Inst. of Tech., Japan*

VHFp1 - 7 **Evaluation of a Real-Time Automatic Coloring System for Freehand Line Drawings**

S. Kurata, H. Mori, F. Toyama, K. Shoji

Utsunomiya Univ., Japan

VHFp1 - 8 **Comparison of Brain Activation between Reading and Listening e-Books**

*H. Isono, K. Onoguchi**

Tokyo Denki Univ., Japan
**Yokogawa Solution Service, Japan*

VHFp1 - 9 **Personal Authentication Based on Lip Shapes Pronouncing Vowels Analysis by Picture Processing**

T. Senga, F. Saitoh

Gifu Univ., Japan

VHFp1 - 10 **Color Natural Images Sharpening Processing Based on Human Visual Characteristics**

J. Miyachi, F. Saitoh

Gifu Univ., Japan

----- Break -----

16:00 - 17:10 **Hiei**

VHF4: Color and Vision

Chair: K. Masaoka, NHK, Japan
Co-Chair: T. Nakatsue, Sony, Japan

VHF4 - 1: 16:00 ***Invited*** **Observer Metamerism in Displays**

Y. Asano[,**]*

[*]Rochester Inst. of Tech., USA
[**]Motorola Mobility, USA

VHF4 - 2 16:30 **Memory Colors of Familiar Objects in Abnormal and Normal Color Visions**

J.-W. Jian, H.-S. Chen, N.-C. Hu

Nat. Taiwan Univ. of S&T, Taiwan

VHF4 - 3 16:50 **Measured and Calculated Value of the Helmholtz-Kohlrausch Effect for Natural Images under the Ambient Lightings Conditions**

S. Hashimoto, T. Shizume, G. Ohashi, H. Takamatsu[*], Y. Shimodaira

Shizuoka Univ., Japan
[*]NEC Display Solutions, Japan

----- Break -----

17:40 - 18:50 **Hiei**

VHF5: Color Rendering

Chair: Y. Asano, Rochester Inst. of Tech., USA
Co-Chair: A. Yoshida, Sharp, Japan

VHF5 - 1: 17:40 ***Invited*** **Recommendation of Color Rendering Index Value for Wide-Gamut UHDTV Production**

H. Iwasaki, T. Hayashida[*], K. Masaoka[*], M. Shimizu, T. Yamashita[*], W. Iwai

Panasonic, Japan
[*]NHK, Japan

VHF5 - 2 18:10 **An Adaptive Color Calibration Method for LCDs in Different Display Modes**

Y. C. Su, P. L. Sun, H. C. Li, W. C. Hung

Nat. Taiwan Univ. of S&T, Taiwan

VHF5 - 3
18:30
Evaluation of Color Correction Operations for 3D Scanning Images

K. L. Chan, H. Y. Hsiao, T. H. Lin, H. S. Chen

Nat. Taiwan Univ. of S&T, Taiwan

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:20 **Ohmi 9**

3D4/VHF6: Autostereoscopic and Head-Mounted Displays

Chair: Y. Takaki, Tokyo Univ. of A&T, Japan
Co-Chair: S. Uehara, Toshiba, Japan

3D4/VHF6 - 1
9:00
HaptoMIRAGE: An Active-Shuttered Real Imaged Auto-Stereoscopic Display

Y. Ueda, H. Nii[*], K. Minamizawa, S. Tachi[**]

Keio Univ., Japan
[*]IIJ Innovation Inst., Japan
[**]Univ. of Tokyo, Japan

3D4/VHF6 - 2
9:20
Dual Orthogonal Flat Panel Autostereoscopic Display Using Visible Gap Contraction Prism

H. Imai, N. Takanashi

NEC, Japan

3D4/VHF6 - 3
9:40
Sense of Height and Virtual Body in Head-Mounted Display Environments

T. Shibata, T. Inoue[*]

Tokyo Univ. of Social Welfare, Japan
[*]Kanagawa Inst. of Tech., Japan

3D4/VHF6 - 4
10:00
Development of Poor Man's 3D-AR Platform for Amateur Game Creators

Y. Yoneda, H. Kiriyama, K. Iwasaki, E. Dong, K. Takemura, R. Urushihara[*], T. Fujita

Tokyo Inst. of Tech., Japan
[*]Ochanomizu Univ., Japan

----- Break -----

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

Supporting Organizations:
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Technical Group on Information Display, ITE

Workshop on Projection and Large-Area Displays and Their Components

Thursday, December 10

9:00 - 9:05 **Ohmi 10**

Opening

Opening Remarks
9:00

S. Ouchi, Hitachi, Japan

9:05 - 10:30 **Ohmi 10**

PRJ1: Projection Applications

Chair: D. Cuypers, imec, Belgium
Co-Chair: H. Nakano, Barco Japan, Japan

PRJ1 - 1: 9:05 ***Invited*** **Volumetric Display Containing Multiple Two Dimensional Information Patterns**

A. Shiraki, H. Nakayama, R. Hirayama, T. Kakue, T. Shimobaba, T. Ito

Chiba Univ., Japan

PRJ1 - 2 9:30 **Implementation of Volumetric 3D Display with Multi-Layered Shutter Screens for Enhanced the Depth Recognition**

J.-T. Kim, S.-H. Yoo, M.-K. Park, H.-R. Kim

Kyungpook Nat. Univ., Korea

PRJ1 - 3 9:50 **Boosting the Brightness of an LED Projector by Adding Laser Light Source**

P. Hickl, M. N. Ngo

Barco Control Rooms, Germany

PRJ1 - 4 10:10 **Low-Speckle 6 Primary Laser Digital Cinema Projector**

P. Janssens, N. Coulier, W. D'Oosterlinck, G. Van Den Bergh

Barco, Belgium

10:30 - 10:42 **Ohmi 10**

Short Presentation PRJp1: Projection

All authors of poster papers for the PRJp1 session will give a brief 3-minute oral presentations with no discussion time in advance.

----- Lunch -----

13:40 - 15:40 **Ohmi 6**

***Poster* PRJp1: Projection**

PRJp1 - 1 **On the Discussion of the Uniformity Metrics**
C.-J. Ou, S.-E. Hong, Y.-Y. Chang, C.-H. Wu
Hsiuping Univ. of S&T, Taiwan

PRJp1 - 2 **Image Projection Using Random Phase-Free Hologram**
Y. Nagahama, T. Shimobaba, T. Kakue, T. Ito
Chiba Univ., Japan

PRJp1 - 3 **Head-Up Display System Incorporated with an Optical Element Having Both Lens Shift and Convex Features**
C.-Y. Shih, S.-W. Cheng, J.-T. Hsu
Automotive Res. & Testing Ctr., Taiwan

PRJp1 - 4 **Electrochromic Display Combined with Microcapsule**
J.-H. Yoon, M.-S. Kim, C.-H. Moon
Hoseo Univ., Korea

----- Break -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 10:00 **Ohmi 10**

PRJ2: Projection Components and Materials

Chair: P. Janssens, Barco, Belgium
Co-Chair: T. Hayashi, OKAMOTO GLASS, Japan

PRJ2 - 1 **Circular Liquid Crystal Alignment Using the Oblique Inorganic Material Deposition Method**
9:00
D. Cuypers, J. D. Smet, P. Joshi, X. Shang, H. D. Smet
IMEC & Ghent Univ., Belgium

PRJ2 - 2 **Optical Resin for Displays**
9:20
R. Ozeki, T. Kenmochi
Kyoritsu Chem., Japan

PRJ2 - 3
9:40 **Ultra High Contrast Reflective HTPS Projector Applied Laser Diode**

A. Haruyama, Y. Sugimoto, S. Uchiyama, M. Kawamura, T. Toyooka, H. Iisaka

Seiko Epson, Japan

----- Break -----

10:40 - 12:05 **Ohmi 10**

PRJ3: Solid State Light Source

Chair: P. Hickl, Barco Control Rooms, Germany
Co-Chair: T. Fukui, Oxide, Japan

PRJ3 - 1:
10:40 ***Invited*** **Speckle Reduction by Using Transmissive ZnO Device Based on Dressed-Photon-Assisted Optical Modulation**

N. Tate, T. Kawazoe[*], S. Nakashima, W. Nomura, M. Ohtsu[,**]*

Kyushu Univ., Japan
[*]Res. Inst. of Nanophotonics, Japan
[**]Univ. of Tokyo, Japan

PRJ3 - 2
11:05 **Highly Reliable High Power 638 nm Broad Area Laser Diode for Display Application**

T. Yagi, K. Kuramoto, R. Wakamatsu, M. Miyashita

Mitsubishi Elec., Japan

PRJ3 - 3
11:25 **Optically Efficient Homogenization of Laser Illumination**

F. Shevlin

DYOPTYKA, Ireland

PRJ3 - 4
11:45 **Mixed Phosphors/Dye in Liquid for High Power Digital Projectors with Laser Excitation**

K. Li

Wavien, USA

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 14:30 **Ohmi 10**

PRJ4: Automotive Display and Lighting

Chair: F. Shevlin, DYOPTYKA, Ireland
Co-Chair: K. Ohara, Texas Instrs., Japan

PRJ4 - 1: 13:30 ***Invited*** **Study on the Effect of the Laser Headlights on the Brightness of Road Surfaces and Traffic Signs**

S. Iwamoto, Y. Tsukada[*]

Honda R&D, Japan
[*]Nat. Traffic Safety & Environment Lab., Japan

PRJ4 - 2: 13:50 ***Invited*** **Laser/LED Headlights**

T. Waragaya, Y. Nakazato, T. Anzai

Stanley Elec., Japan

PRJ4 - 3: 14:10 ***Invited*** **Visualization of the Wind by the 1.5 µm Coherent Doppler LIDAR**

T. Yanagisawa, T. Sakimura, N. Kotake, S. Kameyama, T. Ando, K. Asaka, M. Furuta, H. Tanaka, T. Harada, M. Hagio, M. Enjo, Y. Kajiyama, Y. Fujii, Y. Hirano

Mitsubishi Elec., Japan

----- Break -----

15:10 - 16:35 **Ohmi 10**

PRJ5: Projection Optics

Chair: J.-W. Pan, Nat. Chiao Tung Univ., Taiwan
Co-Chair: Y. Asakura, NITTOH KOGAKU, Japan

PRJ5 - 1: 15:10 ***Invited*** **Development of RGB Laser Backlight Liquid Crystal Display**

E. Niikura, N. Okimoto, S. Maeda, N. Yasui, A. Heishi, S. Yamanaka, T. Sasagawa[*]

Mitsubishi Elec., Japan
[*]Mitsubishi Elec. Lighting, Japan

PRJ5 - 2 15:35 **Aberration Correction in Ultra Short Throw Projection Lens Using a Relay Optical System**

T. Matsuo, K. Mochizuki, Y. Asakura

NITTOH KOGAKU, Japan

PRJ5 - 3 15:55 **Wide-Conversion Lens Design for a Pico Projector**

K.-W. Zhao, C.-W. Tsao, Y.-C. Chen, K-D. Chang[*], J.-W. Pan

Nat. Chiao Tung Univ., Taiwan
[*]ITRI, Taiwan

PRJ5 - 4
16:15 **Optical Device Design to Realize the Visor-Type Display and Augmented Reality**

C.-H. Chuang, Y.-K. Hsu, C.-Y. Chen, B.-S. Lin[*], P.-J. Wu[*]

Nat. Yunlin Univ. of S&T, Taiwan
[*]Nat. Chiao Tung Univ., Taiwan

----- Break -----

16:50 - 18:00 **Ohmi 10**

PRJ6: Wearable Applications
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: S. Shikama, Setsunan Univ., Japan
Co-Chair: S. Ouchi, Hitachi, Japan

PRJ6 - 1:
16:50 ***Invited*** **High-Luminance See-Through Eyewear Display with Novel Volume Hologram Waveguide Technology**

S. Nakano, T. Oku, K. Akutsu, M. Kuwahara, T. Yoshida, E. Kato, K. Aiki, I. Matsumura, A. Machida, H. Mukawa

Sony, Japan

PRJ6 - 2:
17:15 ***Invited*** **Augmented Vision for Minimally Invasive Surgery**

T. Nakaguchi

Chiba Univ., Japan

PRJ6 - 3
17:40 **A Head Mounted Display Using the Original Flexible Arm and Headband**

M. Watanabe, Y. Fukuda, M. Yagi, H. Ishizaki, M. Nakanishi[*], N. Hanafusa[**], T. Katano

Brother Inds., Japan
[*]Keio Univ., Japan
[**]Univ. of Tokyo Hospital, Japan

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
Laser Display Technology Research Group, Optical Society of Japan
Technical Group on Information Display, ITE

Workshop on Electronic Paper

Wednesday, December 9

13:30 - 14:40 **Hiei**

EP1: Emerging Technologies for e-Paper

Chair: S. Maeda, Tokai Univ., Japan
Co-Chair: N. Kobayashi, Chiba Univ., Japan

EP1 - 1: 13:30 ***Invited*** **Paper Electronics for All Paper-Based Displays**

H. Koga

Osaka Univ., Japan

EP1 - 2: 13:55 ***Invited*** **New Switchable Mirror Sheet Using Gasochromic Switching Method**

K. Yoshimura, Y. Yamada

AIST, Japan

EP1 - 3 14:20 **Photo-Thermo Functional Polymeric Films Showing RGB Coloration and Emission for Dual Mode Displaying Media**

K. Ogasawara, K. Nakamura , N. Kobayashi

Chiba Univ., Japan

----- Break -----

15:10 - 16:35 **Hiei**

EP2: Electrochromic Displays

Chair: N.-S. Roh, Samsung Display, Korea
Co-Chair: M. Higuchi, NIMS, Japan

EP2 - 1: 15:10 ***Invited*** **Inkjet Printed Multi-Color Thin Films for High-Contrast Electrochromic Devices**

B.-H. Chen, S.-Y. Kao, C.-W. Hu[*], M. Higuchi[**], K.-C. Ho, Y.-C. Liao

Nat. Taiwan Univ., Taiwan
[*]AIST,Japan
[**]NIMS, Japan

EP2 - 2 15:35 **Investigation of Mean Electrode Potential in Organic Electrochromic Device during Device Operation**

N. Ura, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

EP2 - 3 15:55 **Investigation of Electrodeposition Behavior and Its Optical Characterization of Ag Deposition-Based Multicolor EC Device**

R. Onodera, A. Tsuboi, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

EP2 - 4 16:15 **Electrochemical Modulation of Emission and Coloration by Novel Functional TiO_2 Electrode Having Covalently Connected Lanthanide(II) Complexes and Viologen Derivatives**

K. Nakamura, K. Kanazawa, Y. Komiya, N. Kobayashi

Chiba Univ., Japan

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:15 **Ohmi 3**

EP3: Electrophoretic Displays and Applications

Chair: G. Zhou, South China Normal. Univ., China
Co-Chair: K. Hashimoto, E Ink Japan, Japan

EP3 - 1: 9:00 ***Invited*** **Innovation and Application of e-Paper Display**

F.-J. Ko

E Ink Holdings, Taiwan

EP3 - 2: 9:25 ***Invited*** **Development of Flexible Active-Matrix Electrophoretic Displays**

K. Nomoto

Sony, Japan

EP3 - 3: 9:50 ***Invited*** **Future Electronic Paper in Office: Proposals Based on Actual Use of Electronic Paper Device**

H. Shibata, Y. Fukase[*], K. Hashimoto[**], Y. Kinoshita[***], H. Kobayashi, S. Nebashi[****], M. Omodani[*****], T. Takahashi[******]

Fuji Xerox, Japan
[*]ISJ, Japan
[**]E Ink Japan, Japan
[***]Toshiba Tech, Japan
[****]Seiko Epson, Japan
[*****]Tokai Univ., Japan
[******]Dai Nippon Printing, Japan

10:15 - 10:21 **Ohmi 3**

Short Presentation EPp1: Electronic Paper

All authors of poster papers for the EPp1 session will give a brief 3-minute oral presentations with no discussion time in advance.

----- Lunch -----

13:40 - 15:40 **Ohmi 6**

Poster **EPp1: Electronic Paper**

EPp1 - 1 **Evaluation of Efficiency Improvement Offered by e-Paper Used as a Reference Screen for Tasks on PC**

N. Ota, M. Omodani

Tokai Univ., Japan

EPp1 - 2 **Effects of Silver Halide Complexes on the Coloration Properties of Silver Deposition-Based Electrochromic Device**

R. Kimura, A. Tsuboi, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

----- Break -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Evening Get-Together with Wine

Tuesday, Dec. 8, 2015
18:00 – 20:00
Hiei (2F)
Otsu Prince Hotel
(Sponsored by Merck Ltd., Japan)
See page 12 for details

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

Poster **MEETp1: Emerging Technologies**

MEETp1 - 1 **Electrode Patterns for Optimized HB-LED Apodization Profiles**

C.-J. Ou, S.-E. Hong, Z.-Y. Shi

Hsiuping Univ. of S&T, Taiwan

MEETp1 - 2 **Surface Structures Treatment for Light Extraction of HB-Light Emitting Diode**

C.-J. Ou, C.-H. Wu

Hsiuping Univ. of S&T, Taiwan

MEETp1 - 3 **Investigating the Photoelectric Characteristics of the TiO_2 Composite Graphene UV Photodetector**

C.-T. Wang, C.-C. Ting[*]*, S.-Y. Chu*

Nat. Cheng Kung Univ., Taiwan
[*]Nat. Chung Cheng Univ., Taiwan

----- Break -----

16:00 - 16:05 **Ohmi 8**

Opening

Opening Remarks
16:00

M. Nakamoto, Shizuoka Univ., Japan

16:05 - 17:25 **Ohmi 8**

MEET1: Quantum Dots Applications

Chair: Y. Bonnassieux, Ecole Polytecnique, France
Co-Chair: F. Templier, CEA-LETI, France

MEET1 - 1: ***Invited*** **Beyond Edge-Lit TV: Diversifying Quantum**
16:05 **Dot Penetration into Other Display Segments**

S. Coe-Sullivan

QD Vision, USA

MEET1 - 2: 16:25 ***Invited*** **Next Generation Display Technology: Quantum Dot LEDs**

J. R. Manders[*], L. Qian[*], A. Titov[*], J. Hyvonen[*], K. P. Acharya[*], J. Tokarz-Scott[*], J. Xue[**], P. H. Holloway[,**]*

[*]NanoPhotonica, USA
[**]Univ. of Florida, USA

MEET1 - 3: 16:45 ***Invited*** **Outcoupling Efficiency of Electrospun Nanofiber Sheet Embedded with Quantum Rods**

M. Hasegawa, Y. Hirayama, S. Dertinger

Merck, Japan

MEET1 - 4: 17:05 ***Invited*** **Inverted Quantum-Dot Light Emitting Diodes Using Solution Processed Metal-Oxide Electron Transport Layer**

H.-M. Kim, J.-G. Kim, J.-E. Lee, J. Jang

Kyung Hee Univ., Korea

----- Break -----

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

10:40 - 12:00 **Ohmi 8**

MEET2: Novel Materials and Components

Chair: J. Silver, Brunel Univ. London, UK
Co-Chair: J. Jang, Kyung Hee Univ., Korea

MEET2 - 1: 10:40 ***Invited*** **Very Low Voltage Flexible N-Type Organic Field Effect Transistors**

Y. Bonnassieux, S. Jung, M. Al-Bariqi[*], G. Gruntz[**], Y. Nicolas[**], T. Toupance[**], G. Horowitz

Ecole Polytechnique, France
[*]Royal Saudi Naval Forces, Saudi Arabia
[**]Univ. of Bordeaux, France

MEET2 - 2: 11:00 ***Invited*** **Carbon Nanotube Electron Beams for Medical and Display Devices**

J. S. Kang, M. T. Chung, K. C. Park

Kyung Hee Univ., Korea

MEET2 - 3: 11:20 ***Invited*** **World's Fastest Plastic Optical Fiber and Network for 4K/8K TV**

Y. Koike, A. Inoue

Keio Univ., Japan

MEET2 - 4
11:40 **Pseudo-Crystalline Silicon PIN Diode with Carbon Nanotube Electron Beam(C-Beam) Exposure Technique**

M. T. Chung, J. S. Kang, H. R. Lee, J. H. Hong, K. C. Park

Kyung Hee Univ., Korea

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 14:50 **Ohmi 8**

MEET3: MEMS and Related Technologies

Chair: Y. Aoyagi, Ritsumeikan Univ., Japan
Co-Chair: K. C. Park, Kyung Hee Univ., Korea

MEET3 - 1: ***Invited*** **Development and Applications of MEMS**
13:30 **Process Tools**

S. Tanaka

Tohoku Univ., Japan

MEET3 - 2
13:50 **Membrane-Type Microheater for Wavelength Selective Infrared Emitter and CO_2 Gas Sensing**

H. Ishihara, K. Masuno, M. Ishii, S. Kumagai[*]*, M. Sasaki*[*]

Yazaki, Japan
[*]Toyota Tech. Inst., Japan

MEET3 - 3
14:10 **Enhancement and Transparent of Film Applied to the Transparent Display Device**

C.-H. Chiu, Y.-H. Chen[*]*, W.-C. Chien*[*]*, C.-H. Chien*[*]

Chunghwa Picture Tubes, Taiwan
[*]Tatung Univ., Taiwan

MEET3 - 4
14:30 **Novel Solar Window with LED Illuminating Compensation for LCD Display**

C.-J. Ou, H.-J. Wang, M.-Z. Zhang, H.-C. Chen, M.-H. Tsai

Hsiuping Univ. of S&T, Taiwan

----- Break -----

15:10 - 16:30 **Ohmi 8**

MEET4: Nanotechnologies for Display Applications

Chair: S. Tanaka, Tohoku Univ., Japan
Co-Chair: G. R. Fern, Brunel Univ. London, UK

MEET4 - 1: 15:10 ***Invited*** **Blue and Green 10-μm Pixel Pitch GaN LED Arrays with Very High Brightness**

F. Templier, J.-M. Bethoux, B. Aventurier, E. Tirano, M. Lacroix, M. Marra, V. Verney, L. Dupré, F. Marion, F. Berger, W. B. Naceur, A. Sanchot, I.-C. Robin, M.-A. d. Forte-Poisson[*]*, P. Gamarra*[*]*, C. Lacam*[*]

CEA-LETI, France
[*]III-V Lab, France

MEET4 - 2: 15:30 ***Invited*** **Fabrication of Nonlinear Photonic Crystal and Its Application to UV Laser**

Y. Aoyagi[*,**]*, N. Kurose*[*]*, S. Inoue*[**]

[*]Ritsumeikan Univ., Japan
[**]Tokyo Inst. of Tech., Japan

MEET4 - 3 15:50 **Multifunctional LED Back-Lightings for Displaying, Illuminating and Insect Prevention**

C.-J. Ou, Y.-Y. Lin, G.-T. Liu, Y.-Y. Lin, M.-Y. Li, C.-H. Wu

Hsiuping Univ. of S&T, Taiwan

MEET4 - 4 16:10 **OLED Micro-Display in 0.35 μm Complementary Metal-Oxide Semiconductor Technologies for Wearable Electronic Display Application**

C.-H. Chang, P.-T. Liu, T.-Y. Ting[*]*, J.-T. Lian*[*]

Nat. Chiao Tung Univ., Taiwan
[*]Chungwa Picture Tubes, Taiwan

----- Break -----

IDW Best Paper Award

IDW Outstanding Poster Paper Award

These awards will go to the most outstanding papers selected from those presented at IDW '15.
The 2015 award winners will be announced on the IDW website: http://www.idw.or.jp/award.html

16:50 - 17:50 **Ohmi 8**

MEET5: Emerging Quantum Dots and Nanotechnologies

Chair: S. Coe-Sullivan, QD Vision, USA
Co-Chair: J. Manders, NanoPhotonica, USA

MEET5 - 1: 16:50 ***Invited*** **By Understanding How Light Emission Depends on Size, Morphology and Phase in Inorganic Phosphor Materials, Can We Deduce Properties to Design Efficient Nanostructures for Tomorrows Industrial Needs**

*J. Silver[*], G. R. Fern[*], T. Ireland[*], D. d. Engelsen[*], D. Hudry[**], J. H Dickerson[**,***]*

[*]Brunel Univ. London, UK
[**]Brookhaven Nat. Lab., USA
[***]Brown Univ., USA

MEET5 - 2: 17:10 ***Invited*** **Electron Microscopy of Quantum Dots for Display Applications**

G. R. Fern, J. Silver, T. Ireland, P. Hobson, S. Coe-Sullivan[*]

Brunel Univ. London, UK
[*]QD Vision, USA

MEET5 - 3: 17:30 ***Invited*** **ITU-R BT.2020 Color in LCDs with Today's Technologies: A Comparative Analysis**

J. Thielen, J. Hillis, J. Tibbits, A. Lemon, D. Lamb, J. VanDerlofske, G. Benoit

3M, USA

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Quantum Dots Sessions

PHp 10:30 – 12:30 Thursday, Dec. 10
Ohmi 6 (Poster)

MEET1 16:05 – 17:25 Thursday, Dec. 10
PH3 9:00 – 10:20 Friday, Dec. 11
MEET5 16:50 – 17:50 Friday, Dec. 11
Ohmi 8 (Oral)

Workshop on Display Electronic Systems

Wednesday, December 9

13:30 - 15:10 **Ohmi 10**

DES1: Various Visualization Technologies

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: Y. Oyamada, Tottori Univ., Japan
Co-Chair: T. Mitasaki, NTT, Japan

DES1 - 1: 13:30 ***Invited*** **Near-Eye Display of Light Fields**
W. Wu, I. Tosic, N. Bedard, K. Berkner, N. Balram
Ricoh Innovations, USA

DES1 - 2: 13:55 ***Invited*** **Perceptual Illusions for Multisensory Displays**
T. Amemiya
NTT, Japan

DES1 - 3: 14:20 ***Invited*** **Duality in Computational Photography and Display**
S. Hiura
Hiroshima City Univ., Japan

DES1 - 4: 14:45 ***Invited*** **Augmented Reality Visualization Fusion**
Y. Oyamada
Tottori Univ., Japan

----- Break -----

15:30 - 16:55 **Ohmi 10**

DES2: Transparent Display Systems

Chair: H. Okumura, Toshiba, Japan
Co-Chair: A. Sakaigawa, Japan Display, Japan

DES2 - 1: 15:30 ***Invited*** **A Concept of Immersive Telepresence "Kirari!"**
M. Imoto, S. Uchida, E. Ashikaga, M. Wagatsuma, K. Hidaka
NTT, Japan

DES2 - 2 15:55 **Transparent Liquid Crystal Display with Three States; Transparent State, White State and Black State**

Y. Iyama, T. Sasaki, I. Aoyama, K. Hanaoka, T. Ishihara, M. Yashiki, K. Takase, H. Miyata, H. Yoshida

Sharp, Japan

DES2 - 3 16:15 **A Novel RGBT Signal and Device for Transparent Display**

P.-L. Hsieh, H.-T. Lin

Chunghwa Picture Tubes, Taiwan

DES2 - 4 16:35 **Improving the Image Quality of Transparent PDLC Display by Using Dehazing Technique**

C.-C. Liao, C.-W. Su

Chunghwa Picture Tubes, Taiwan

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

***Poster* DESp1: Display Electronic Systems**

DESp1 - 1 **Development of 32-in. 8K4K LCD Driving System**

H.-L. Hu, W.-C. Peng, J.-M. Kuang, X.-L. Chen

Shenzhen China Star Optoelect. Tech., China

DESp1 - 2 **Implementation of FHD Sub-Pixel Rendering Panel**

D.-W. Kuo, J.-S. Liao, H.-H. Chen, H.-M. Su, W.-T. Tseng

Chunghwa Picture Tubes, Taiwan

DESp1 - 3 **The Introduction of a Pixel Structure Design**

X. Xu, A. Zhang, J. Chen, Q. Qiu, X. Chen, B. Liao

Shenzhen China Star Optoelect. Tech., China

DESp1 - 4 **Low-Power and Highly Reliable a-Si Gate Driver with DC-Type Driving Source**

P.-C. Lai, F.-H. Chen, C.-E. Wu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

DESp1 - 5 **Novel PWM Circuits and Power Supply Design for LED Lightings**

C.-J. Ou, Z.-Y. Shi, S.-Z. Yang

Hsiuping Univ. of S&T, Taiwan

----- Break -----

16:00 - 17:15 **Ohmi 10**

DES3: Application for Automobiles

Chair: K. Morita, Nat. Traffic Safety & Environment Lab., Japan
Co-Chair: T. Fujine, Sharp, Japan

DES3 - 1: 16:00 ***Invited*** **Technical Evolution of Automotive Headlamps**

S. Yamamura

Koito Manufacturing, Japan

DES3 - 2: 16:25 ***Invited*** **Standardization of Camera Monitor System (CMS) for Mandatory Rearview Mirrors for Road Vehicles Replacement**

H. Shinki, E. Oba[*], M. Oka[**], N. Yoshitsugu[***]

Faltec, Japan
[*]UD Trucks, Japan
[**]Sony, Japan
[***]Nissan Motor, Japan

DES3 - 3: 16:50 ***Invited*** **Safety Examination for Showing Plural Information on Automobile Head-Up Displays**

M. Enomoto[,**], M. Sekine[*], K. Morita[*], K. Tanaka[**]*

[*]Nat. Traffic Safety & Environment Lab., Japan
[**]Univ. of Electro-Commun., Japan

----- Break -----

17:40 - 19:10 **Ohmi 10**

DES4: Image Processing

Chair: A. Sakaigawa, Japan Display, Japan
Co-Chair: T. Fujine, Sharp, Japan

DES4 - 1: 17:40 ***Invited*** **Image Rendering Technologies for 8K Next Generation TVs**

K. Yoshiyama

Sharp, Japan

DES4 - 2: 18:05 ***Invited*** **Finely Categorized Clothing Recognition**

K. Sudo, T. Umeda, K. Murasaki, J. Shimamura, A. Kojima

NTT, Japan

DES4 - 3 18:30 **Advanced RGBW OLED Display System with Novel RGB-to-RGBW and Subpixel Rendering Algorithm**

H. Li, Y.-F. Jin, S.-S. Syu, M.-J. Jou, J.-W. He, L. Li[*], R. Wang[*]

Shenzhen China Star Optoelect. Tech., China
[*]Peking Univ., China

DES4 - 4
18:50 **Adaptive Saturation Enhancement Based on Min-Max Value and Intensity Gray-Levels Histogram Feedback**

J. L. Zhu, H. Li, S.-S. Syu, M.-J. Jou
Shenzhen China Star Optoelect. Tech., China

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Supporting Organizations:
Kansai Section, IEEE
The Society of Automotive Engineers of Japan (JSAE)
Special Interest Group on Mixed Reality (SIG-MR), The Virtual Reality Society of Japan
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Technical Committee on Image Engineering, Information and Systems Society, IEICE(IE)
Technical Group on Information Display, ITE
Technical Group on Three-Dimensional Image Technology, ITE

Special Address

Lighting the Earth by LEDs

Hiroshi Amano
2014 Nobel Laureate
Nagoya Univ., Japan

16:40 – 17:40 Wednesday, Dec. 9
Ohmi 1 (2F)

"Innovative Demonstration Session" *by Oral and Poster Presenters*

Live demonstrations of emerging information display technologies

Thursday, Dec. 10, 2015
10:30 – 16:00
Ohmi 5 (2F)

Workshop on Flexible Electronics

Thursday, December 10

13:40 - 15:40 **Ohmi 6**

***Poster* FLXp1: Flexible Electronics 1**

FLXp1 - 1 **Low Temperature Silicon Nitride Thin Films for Moisture Barrier Layers by a PECVD Process**

S. J. Kim, S. H. Yong, H. Chae

Sungkyunkwan Univ., Korea

FLXp1 - 2 **Al_2O_3/ZrO_2 Thin Film Encapsulation with Spatially Resolved ALD Process**

S. H. Yong, S. J. Kim, H. Chae

Sungkyunkwan Univ., Korea

FLXp1 - 3 **Optimization of Al_2O_3/ZrO_2 Nanolaminate Structure on the Plastic Substrates for the Flexible Display**

J. H. Eun, Y. S. Paek, H. G. Kim, M. S. Kim, Y. C. Kim, S. S. Kim

Kyung Hee Univ., Korea

13:40 - 15:40 **Ohmi 6**

***Poster* FLXp2: Flexible Electronics 2**
Special Topics of Interest on Oxide-Semiconductor TFT

FLXp2 - 1 **The Instability Change of Flexible a-IGZO TFTs under Different Mechanical Stress**

H.-J. Jeong, K.-C. Ok, H.-M. Lee, J.-S. Park

Hanyang Univ., Korea

13:40 - 15:40 **Ohmi 6**

***Poster* FLXp3: Flexible Electronics 3**
Special Topics of Interest on Printed Electronics

FLXp3 - 1 **Development of Novel Primer Material Suitable for COP Film and Ag Nano-Ink**

T. Yamate[,**], E. Mieda[*], K. Kumazawa[*], H. Suzuki[*], M. Akazome[**]*

[*]Nippon Soda, Japan
[**]Chiba Univ., Japan

----- Break -----

17:40 - 17:50 **Ohmi 8**

Opening

Opening Remarks
17:40

M. Kimura, Nagaoka Univ. of Tech., Japan

17:50 - 19:20 **Ohmi 8**

FLX1/INP4: Flexible Input Devices

Chair: T. Shiro, Teijin, Japan
Co-Chair: K. Yamazaki, Corning Japan, Japan

FLX1/INP4 - 1: 17:50
Invited **Foldable AMOLED with Integrated On-Cell Touch Sensor for Mobile Device Applications**
J. Chen, J.-C. Ho, G. Chen, M.-H. Yeh, C.-C. Lee
ITRI, Taiwan

FLX1/INP4 - 2: 18:15
Invited **Large-Scale Printed Metal Nanowire for Transparent and Flexible Electrodes**
Y. Lee, S.-Y. Min, T.-W. Lee
POSTECH, Korea

FLX1/INP4 - 3 18:40
Evaluation of Electrochemical Migration of ITO/Ag/ITO Structure for Touch Panel Sensor
Y. Toshimori, T. Ueda, F. Kikuchi, H. Ishii, I. Shiono, S. Zhang
Mitsubishi Materials, Japan

FLX1/INP4 - 4 19:00
Ultra High Resolution Copper Lithography Not Requiring Fine Mask Design Rules and Without Damaging Copper
*M. A. Hsu, C.-H. Lin, A. Igawa**
Consistent Elect. Materials, Taiwan
**eChem Solutions Japan, Japan*

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Friday, December 11

9:00 - 9:45 **Ohmi 3**

FLX2/LCT5: Flexible LCDs

Chair: H. Funahashi, Kagawa Univ., Japan
Co-Chair: H. Okada, Toyama Univ., Japan

FLX2/LCT5 - 1: 9:00
Invited **Advanced Polymer and LC Technologies for High Quality Flexible Displays**
H. Fujikake, H. Sakai, A. Sato, E. Uchida, D. Sasaki, Y. Obonai, Y. Isomae, T. Ishinabe
Tohoku Univ., Japan

FLX2/LCT5 - 2 9:25
Uniform Lying Helix of Cholesteric LC Aligned by Means of Coating Method with Electric Treatment
N. Endo, M. Kimura
Nagaoka Univ. of Tech., Japan

----- Break -----

10:40 - 12:00 **Ohmi 2**

OLED5/FLX3: Flexible OLED and OTFT

Chair: Y. Sakai, Mitsubishi Chem. S&T Res. Ctr., Japan
Co-Chair: T. Kamata, AIST, Japan

OLED5/FLX3 - 1: 10:40
Invited **Flexible OLED Fabricated with Fully R2R Process and Their Evaluation Technology**
Y. Mitamura, T. Minakata, A. Sugimoto, M. Tanamura, Y. Ohzu, A. Suzuki, N. Ibaraki, H. Tomiyasu
Chem. Materials Evaluation & Res. Base, Japan

OLED5/FLX3 - 2 11:00
Accurate Evaluation of Water Vapor Transmission for Flexible OLEDs
A. Suzuki, A. Uehigashi
Chem. Materials Evaluation & Res. Base, Japan

OLED5/FLX3 - 3 11:20
Modelling of Improved Power Consumption in a Smartphone Display with Very Low Leakage Current Organic Semiconductor Backplane
J. Carter, C. Watson, K. Crowley, M. A. Cowin
SmartKem, UK

OLED5/ FLX3 - 4 11:40 **Solution Processed P-Type Top-Gate Small-Molecular Organic TFT**

H.-C. Hsiao, Z.-X. Jiang, S. Su, H.-Y. Xu, M. Zeng, B. Sun, C.-Y. Lee, H. Zhou[*], S. Zhang[*]

China Star Optoelect. Tech., China
[*]Peking Univ., China

Author Interviews and Demonstrations
12:00 – 12:40, Ohmi 6

----- Lunch -----

13:30 - 14:40 **Ohmi 2**

FLX4: Flexible Printed Electronics
Special Topics of Interest on Printed Electronics

Chair: T. Sekitani, Osaka Univ., Japan
Co-Chair: M. Ito, Toppan Printing, Japan

FLX4 - 1: 13:30 ***Invited*** **Exploring Low-Dimensional Charge Transport Phenomena in Solution-Processed Metal Oxide Superlattice Transistors**

T. D. Anthopoulos

Imperial College London, UK

FLX4 - 2: 13:55 ***Invited*** **Fluorophilicity as Selection Criterion of Solvents for Printed Organic Electronics**

Y. Kuwana, T. Abe, N. Shirota, T. Sakurada, M. Obi

Asahi Glass, Japan

FLX4 - 3 14:20 **Highly Stable Transparent Conductive Coatings on Ultra-Thin Glass for Flexible Devices**

M. Junghaehnel, S. Weller, T. Gebel[*], W. Skorupa[**], T. Schumann[**]

Fraunhofer, Germany
[*]DTF Tech., Germany
[**]Helmholtz-Zentrum Dresden-Rossendorf, Germany

----- Break -----

15:10 - 16:45 **Ohmi 2**

FLX5: Flexible Displays and Devices

Chair: H. Maeda, Dai Nippon Printing, Japan
Co-Chair: K. Uemura, Nippon Steel & Sumitomo Metal, Japan

FLX5 - 1: 15:10 ***Invited*** **Designing Flexible and Stretchable Circuits and Displays**

J. Genoe[,**], K. Myny[*], F. D. Roose[*,**], S. Steudel[*], J.-L. van der Steen[***], G. H Gelinck[***], P. Heremans[*,**,***]*

[*]imec, Belgium
[**]Katholieke Univ. Leuven, Belgium
[***]Holst Ctr., The Netherlands

FLX5 - 2: 15:35 ***Invited*** **Imperceptible Electronics**

M. Kaltenbrunner

Johannes Kepler Univ., Austria

FLX5 - 3: 16:00 ***Invited*** **High-Mobility Short-Channel Organic Transistors with Photolithography-Patterned Top Electrodes**

T. Uemura, T. Sekitani

Osaka Univ., Japan

FLX5 - 4 16:25 **Fabrication of Low Reflectivity Metal Grid Transparent Electrode on Flexible Plastic Substrate by Adopting Self-Patterned Black Polymer**

J.-C. Choi, J.-S. Park, H.-R. Kim

Kyungpook Nat. Univ., Korea

----- Break -----

Author Interviews and Demonstrations
18:10 – 18:50, Ohmi 6

Supporting Organizations:
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Technical Group on Information Display, ITE

Workshop on Touch Panels and Input Technologies

Wednesday, December 9

13:30 - 13:35 **Ohmi 8**

Opening

Opening Remarks
13:30

N. Hashimoto, Citizen Holdings, Japan

13:35 - 14:40 **Ohmi 8**

INP1: Interactive Technologies

Chair: K. Imoto, Toshiba, Japan
Co-Chair: H. Haga, NLT Techs., Japan

INP1 - 1
13:35 **Integrated Solutions of Electromagnetic Touch Sensor**

F. Lu, C.-M. Liu, Y.-K. Lin*, S.-L. Jin, Q.-J. Yao, H.-S. Wu*, Y. Wu, T.-Y. Wu, C.-M. Liu*, J. Ma*

Shanghai Tianma Micro-Elect., China
**KYE Systems, Taiwan*

INP1 - 2
13:55 **A Novel Technologies of High Resolution Touch on Cell (ToC) LCD with Passive Pen Function**

S.-Y. Wu, Y.-L. Ho, Y.-C. Chen, H.-H. Chen, H.-M. Su, W.-Z. Zeng

Chunghwa Picture Tubes, Taiwan

INP1 - 3:
14:15 ***Invited*** **Design Everything by Yourself**

T. Igarashi

Univ. of Tokyo, Japan

----- Break -----

15:10 - 16:40 **Ohmi 8**

INP2: Touch Panel

Chair: J. Taylor, Sharp Labs. of Europe, UK
Co-Chair: D. Ito, Japan Display, Japan

INP2 - 1: 15:10 ***Invited*** **Improved Signal Processing for Capacitive Touch Panel with Conductive and Non-conductive Object Distinction**

J. Taylor, C. Brown, A. Kay, D. Gallardo, S. Maguire, Y. Sugita[*], K. Kida[*]

Sharp Labs. of Europe, UK
[*]Sharp, Japan

INP2 - 2 15:35 **3D Shaped Touch Panel with Transparent Carbon Nanotube Electrodes**

R. Hattori, O. Watanabe[*], S. Takada[*]

Kyushu Univ., Japan
[*]Toray Inds., Japan

INP2 - 3 15:55 **High Integration Touch in Cell Module**

W.-J. Yang, C.-Y. Hsu, C.-C. Chang, Y.-C. Li, H.-H. Chen, H.-M. Su, W.-T. Tseng

Chunghwa Picture Tubes, Taiwan

INP2 - 4: 16:15 ***Invited*** **Newly Developed 5.5inch WQHD Display with Hybrid In-Cell Capacitive Touch Technology**

D. Ito, Y. Nakajima, K. Noguchi, T. Suzuki

Japan Display, Japan

Author Interviews and Demonstrations
16:30 – 17:10, Ohmi 6

Thursday, December 10

9:00 - 10:15 **Ohmi 8**

INP3: AR and Interactive Systems
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: M. Sato, MIT Media Lab, USA
Co-Chair: N. Hashimoto, Citizen Holdings, Japan

INP3 - 1: 9:00 ***Invited*** **Development of a TV System Augmented Outside the TV Screen**

H. Kawakita[,**], M. Uehara[*], T. Nakagawa[*], M. Sato[**]*

[*]NHK, Japan
[**]Tokyo Inst. of Tech., Japan

INP3 - 2: 9:25 ***Invited*** **Disappearing Touchscreens: Making the World Interactive without Instrumenting It**

M. Sato

MIT Media Lab, USA

INP3 - 3: 9:50 ***Invited*** **Haptic Technologies for Surface Interaction**

H. Kajimoto

Univ. of Electro-Commun., Japan

----- Break -----

13:40 - 15:40 **Ohmi 6**

Poster **INPp1: Touch Panel**

INPp1 - 1 **Oxidation Resistant Cu-Ni-Mn Cap Layer for Bezel Interconnection in the Film Touch Panels**

Y. Shida, H. Goto, H. Okuno[*]*, M. Kanamaru*[*]*, T. Kugimiya*

Kobe Steel, Japan

[*]*Kobelco Res. Inst., Japan*

INPp1 - 2 **Reduce Moiré Phenomenon under Various Display Mode in Metal Mesh Touch Application**

C. Y. Chen, C. C. Chen, S. Y. Huang

General Interface Solution, Taiwan

----- Break -----

17:50 - 19:20 **Ohmi 8**

FLX1/INP4: Flexible Input Devices

Chair: T. Shiro, Teijin, Japan
Co-Chair: K. Yamazaki, Corning Japan, Japan

FLX1/ INP4 - 1: 17:50 ***Invited*** **Foldable AMOLED with Integrated On-Cell Touch Sensor for Mobile Device Applications**

J. Chen, J.-C. Ho, G. Chen, M.-H. Yeh, C.-C. Lee

ITRI, Taiwan

FLX1/ INP4 - 2: 18:15 ***Invited*** **Large-Scale Printed Metal Nanowire for Transparent and Flexible Electrodes**

Y. Lee, S.-Y. Min, T.-W. Lee

POSTECH, Korea

FLX1/ INP4 - 3 18:40 **Evaluation of Electrochemical Migration of ITO/Ag/ ITO Structure for Touch Panel Sensor**

Y. Toshimori, T. Ueda, F. Kikuchi, H. Ishii, I. Shiono, S. Zhang

Mitsubishi Materials, Japan

FLX1/ INP4 - 4 19:00 **Ultra High Resolution Copper Lithography Not Requiring Fine Mask Design Rules and Without Damaging Copper**

*M. A. Hsu, C.-H. Lin, A. Igawa**

Consistent Elect. Materials, Taiwan
**eChem Solutions Japan, Japan*

Author Interviews and Demonstrations
19:00 – 19:40, Ohmi 6

Supporting Organizations:
The Forum for Advancement of Stereoscopic Three Dimensional Image Technology and Arts
Holographic Display Artists and Engineers Club (HODIC), The Optical Society of Japan
Human Interface Society
Technical Group on Information Sensing Technologies, ITE

RECEPTION

Wednesday, Dec. 9, 2015
18:50 – 20:50
Prince Hall (3F)
Otsu Prince Hotel
See page 12 for details

Final Program

The final program of IDW ’15 will be available on the website (http://www.idw.or.jp/) from the middle of November.

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Program Chair:	S. Ishihara	Osaka Inst. of Tech.
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	K. Miyachi	Sharp
	H. Nakata	DIC
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	M. Ozaki	Osaka Univ.
	M. Suzuki	Merck
	T. Takahashi	Kogakuin Univ.
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Program Chair:	H. Minemawari	AIST
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	M. Shibazaki	Innolux
	K. Takatori	NLT Techs.
	Y.-H. Yeh	ITRI

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	M. Shinohara	Omron
	S. Takahashi	Sumitomo Bakelite
	T. Takeda	Nagase ChemteX
	K. Tamai	Asahi Glass
	Y. Ukai	UDDI
	T. Unate	UNATE
	Y. Yang	CSOT

Workshop on EL Displays and Phosphors

Workshop Chair:	Y. Nakanishi	Shizuoka Univ.
Program Chair:	N. Miura	Meiji Univ.
General Secretary:	N. Matsuda	Toshiba Materials
Program Committee:	K. Hara	Shizuoka Univ.
	T. Hisamune	Mitsubishi Chem.
	S. Itoh	Futaba
	D. Jeon	KAIST
	H. Kobayashi	Tottori Univ.
	T. Kunimoto	Tokushima Bunri Univ.
	T. Kusunoki	Dexerials
	T. Miyata	Kanazawa Inst. of Tech.
	T. Mukai	Nichia Chem. Inds.
	K. Ohmi	Tottori Univ.
	D. Poelman	Gent Univ.
	M. Shiiki	Hitachi Chem.
	K. Wani	TAZMO
	R. Xie	NIMS

Workshop on Field Emission Displays, CRTs and Plasma Displays

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Program Chair:	H. Shimawaki	Hachinohe Inst.of Tech.
General Secretary:	M. Nanba	NHK
Program Committee:	Y. Gotoh	Kyoto Univ.
	H. Kajiyama	Tokushima Bunri Univ.
	M. Nagao	AIST
	M. Nakamoto	Shizuoka Univ.
	Y. Neo	Shizuoka Univ.
	M. Niigaki	Hamamatsu Photonics
	T. Shiga	Univ. of Electro-Commun.
	M. Takai	Osaka Univ.
	F. Wakaya	Osaka Univ.

Workshop on OLED Displays and Related Technologies

Workshop Chair:	K. Monzen	Nissan Chem. Inds.
Program Chair:	T. Ikuta	JNC Petrochem.
Program Vice-Chair:	H. Kuma	Idemitsu Kosan
General Secretary:	T. Uchida	Tokyo Polytechnic Univ.
Program Committee:	C. Adachi	Kyushu Univ.
	M. Adachi	Japan Display
	S. Aratani	Hitachi
	S. Enomoto	Toshiba
	T. Fukuda	Saitama Univ.
	T. Inoue	TDK Corporation
	Y. Kijima	JOLED
	T. Komatsu	JOLED
	A. Mikami	Kanazawa Inst. of Tech.
	H. Murata	JAIST
	S. Naka	Univ. of Toyama
	K. Nakayama	Yamagata Univ.
	Y. Sakai	MCRC
	T. Shimizu	NHK
	S. Tokito	Yamagata Univ.
	T. Tsuji	Pioneer
	T. Wakimoto	Merck

Workshop on 3D/Hyper-Realistic Displays and Systems

Workshop Chair:	M. Tsuchida	NTT
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General Secretary:	J. Arai	NHK
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	M. Tsuboi	NTT DoCoMo
	H. Yamamoto	Univ. of Utsunomiya
	S. Yano	Shimane Univ.

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Program Chair:	K. Masaoka	NHK
Program Vice-Chair:	T. Nakatsue	Sony
General Secretary:	A. Yoshida	Sharp
Program Committee:	J. Bergquist	Nokia Corp.
	N. Hiruma	NHK
	Y. Hisatake	Japan Display

	M. Idesawa	Univ. of Electro-Commun.
	H. Isono	Tokyo Denki Univ.
	A. Morishita	Toshiba
	Y. Nakamura	Mitsubishi Elec.
	G. Ohashi	Shizuoka Univ.
	K. Sakamoto	Panasonic
	T. Shibata	Tokyo Unv. of Social Welfare
	Y. Shimodaira	Shizuoka Univ.
	J. Someya	Mitsubishi Elec.
	T. Tamura	Tokyo Polytech. Univ
	S. Uehara	Toshiba
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Workshop on Projection and Large-Area Displays and Their Components

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Program Chair:	K. Ohara	Texas Instr. Japan
Program Vice-Chair:	S. Shikama	Setsunan Univ.
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Vice-Secretary:	O. Akimoto	Sony
	M. Takaso	Telepathy Japan
Program Committee:	Y. Asakura	Nittoh Kogaku
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	Y. Hotta	Ricoh
	S. Maeda	Tokai Univ.
	M. Omodani	Tokai Univ.
	N.-S. Roh	Samsung Display
	A. Suzuki	Chiba Univ.
	G. Zhou	South China Normal Univ.

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

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Vice-Secretary	T. Komoda	Yamagata Univ.
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	G. Barbastathis	MIT
	Y. Bonnassieux	Ecole Polytechnique

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	M. Esashi	Tohoku Univ.
	G. R. Fern	Brunel Univ.
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	D. Pribat	Ecole Polytechnique
	J. Silver	Brunel Univ.
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	H. Tuller	MIT
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	J. Van Derlofske	3M
	Q. Yan	Sichuan COC Display Devices

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General Secretary:	T. Mitasaki	NTT
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	H. Nitta	Japan Display
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	A. Sakaigawa	Japan Display
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Program Chair:	T. Sekitani	Osaka Univ.
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	H. Okumura	Toshiba
	Y. Sasaki	Mitsubishi Elec.
	Y. Sugita	Sharp
	J. Watanabe	NTT
	K. Yamazaki	Corning Japan

Special Topics of Interest on Oxide-Semiconductor TFT

Facilitator:	M. Kimura	Ryukoku Univ.
Program Committee:		
AMD	H. Kumomi	Tokyo Inst. of Tech.
FMC	R. Yamaguchi	Akita Univ.
FLX	M. Nakata	NHK

Special Topics of Interest on Augmented Reality and Virtual Reality

Facilitator:	Y. Oyamada	Tottori Univ.
Program Committee:		
FMC	K. Käläntär	Global Optical Solutions
FMC	M. Shinohara	Omron
3D	M. Tsuchida	NTT
PRJ	S. Ouchi	Hitachi
DES	Y. Oyamada	Tottori Univ.
INP	N. Hashimoto	Citizen Holdings
VHF	A. Yoshida	Sharp

Special Topics of Interest on Lighting Technologies

Facilitator:	Y. Kijima	JOLED
Program Committee:		
PH	K. Hara	Shizuoka Univ.
OLED	H. Kuma	Idemitsu Kosan
MEET	Y. Nakai	Toshiba

Special Topics of Interest on Printed Electronics

Facilitator:	H. Hirata	Toray Eng.
Program Committee:		
LCT	T. Ishinabe	Tohoku Univ.
AMD	H. Minemawari	AIST
FMC	T. Tomono	Toppan Printing

OLED	T. Ikuta	JNC Petrochem.
FLX	H. Hirata	Toray Eng.

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ASAHI GLASS Co., Ltd.
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Late-News Papers

Due Sep. 24, 2015
Submit a two-page camera-ready manuscript
via IDW website:
http://www.idw.or.jp/latenews.html

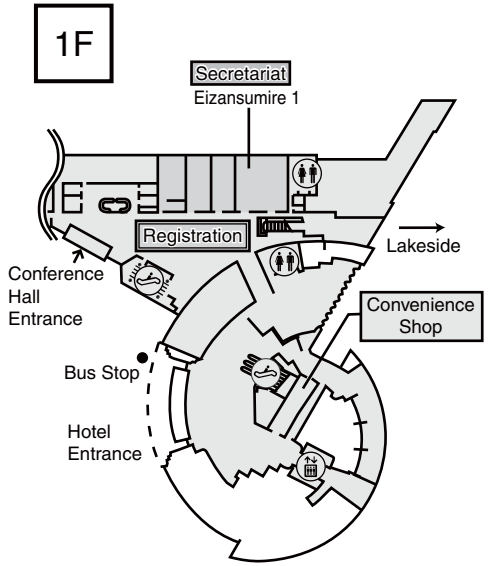
Special Address

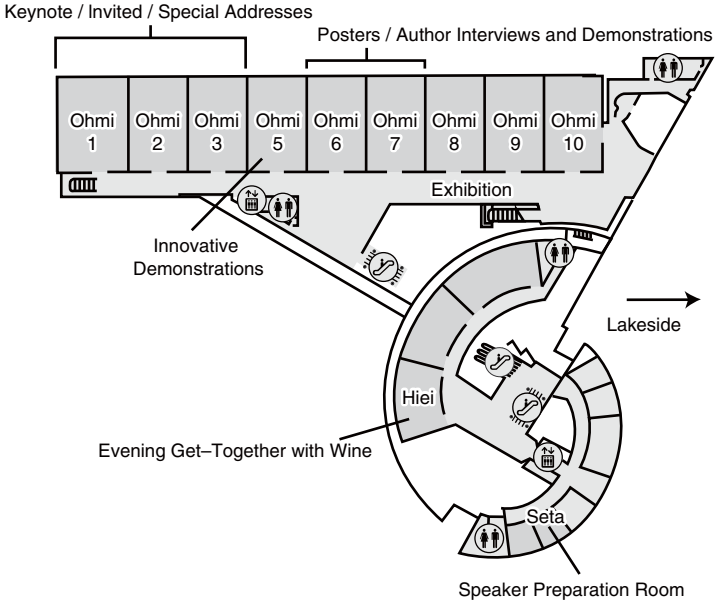
Lighting the Earth by LEDs

Hiroshi Amano
2014 Nobel Laureate
Nagoya Univ., Japan

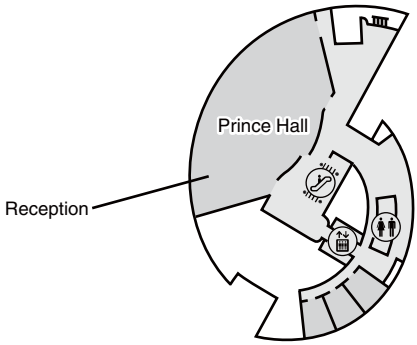
16:40 – 17:40 Wednesday, Dec. 9
Ohmi 1 (2F)

FLOOR MAP


1F
Secretariat
Eizansumire 1
Registration
Lakeside
Conference
Hall
Entrance
Convenience
Shop
Bus Stop
Hotel
Entrance


2F
Keynote / Invited / Special Addresses
Posters / Author Interviews and Demonstrations
Ohmi 1
Ohmi 2
Ohmi 3
Ohmi 5
Ohmi 6
Ohmi 7
Ohmi 8
Ohmi 9
Ohmi 10
Exhibition
Innovative
Demonstrations
Lakeside
Hiei
Evening Get–Together with Wine
Seta
Speaker Preparation Room

3F



IDW '15 Workshop Timetable

Date	1F Lobby	2F Ohmi 1	2F Ohmi 2	2F Ohmi 3	2F Ohmi 5	2F Ohmi 6	2F Ohmi 7	2F Ohmi 8	2F Ohmi 9	2F Ohmi 10	2F Hiei	2F Lobby
Tue., Dec. 8	Registration 17:00 - 20:00										Evening Get-Together 18:00 - 20:00	
Wednesday, December 9	Registration 8:00 - 18:00	Opening, Keynote & Invited Addresses 9:30 - 11:50										
		Lunch										Exhibition 12:00 - 17:00
		OLED1 (p.69) 13:30 - 14:50					VHF1 (p.82) 13:30 - 14:40	INP1 (p.109) 13:30 - 14:40	LCT1 (p.38) 13:30 - 14:55	DES1 (p.100) 13:30 - 15:10	EP1 (p.92) 13:30 - 14:40	
		Break										
		OLED2 (p.69) 15:10 - 16:30					VHF2 (p.82) 15:10 - 16:10	INP2 (p.110) 15:10 - 16:40	LCT2 (p.38) 15:10 - 16:10	DES2 (p.100) 15:30 - 16:55	EP2 (p.92) 15:10 - 16:35	
						Author Interviews & Demonstration 16:30 - 17:10						
		Special Address 17:20 - 18:20										
	Reception at the Prince Hall (3F) 18:50 - 20:50											
Thursday, December 10	Registration 8:00 - 18:00	OLED3 (p.70) 9:00 - 10:00	PH1 (p.62) 9:00 - 10:10	EP3† (p.93) 9:00 - 10:21				INP3 (p.110) 9:00 - 10:15	3D1 (p.75) 9:00 - 10:20	PRJ1† (p.87) 9:00 - 10:42	VHF3 (p.83) 9:00 - 10:10	Exhibition 10:00 - 18:00
		Break										
					Innovative Demonstration Session 10:30 - 12:30	Poster LCTp1-3,FMCp,PHp,OLEDp,3Dp 10:30 - 12:30						
		Lunch										
					Innovative Demonstration Session 13:40 - 15:40	Poster LCTp4-6,AMDp,VHFp,PRJp,EPp,MEETp,DESp,FLXp,INPp 13:40 - 15:40						
		Break										
		AMD1 (p.50) 16:00 - 17:10	PH2 (p.64) 16:00 - 17:10	FMC1 (p.58) 16:00 - 17:00				MEET1 (p.95) 16:00 - 17:25	3D2/LCT3 (p.43/p.77) 16:00 - 17:25	DES3 (p.102) 16:00 - 17:15	VHF4 (p.85) 16:00 - 17:10	
		Break										
		AMD2 (p.51) 17:40 - 19:10	LCT4 (p.44) 17:40 - 18:40	FMC2 (p.59) 17:40 - 18:40				FLX1/INP4 (p.105/p.111) 17:50 - 19:20	3D3 (p.78) 17:40 - 19:00	DES4 (p.102) 17:40 - 19:10	VHF5 (p.85) 17:40 - 18:50	
						Author Interviews & Demonstrations 19:00 - 19:40						
Friday, December 11	Registration 8:00 - 13:00	AMD3 (p.51) 9:00 - 10:30	OLED4 (p.73) 9:00 - 10:00	FLX2/LCT5 (p.44/p.106) 9:00 - 9:45	FMC3 (p.59) 9:00 - 10:20			PH3 (p.64) 9:00 - 10:10	3D4/VHF6 (p.79/p.86) 9:00 - 10:20	PRJ2 (p.88) 9:00 - 10:00		Exhibition 10:00 - 14:00
		Break										
		AMD4 (p.52) 10:40 - 11:25	OLED5/FLX3 (p.73/p.106) 10:40 - 12:00	FED1 (p.66) 10:40 - 12:25	FMC4 (p.60) 10:40 - 11:40			MEET2 (p.96) 10:40 - 12:00	3D5 (p.79) 10:40 - 12:00	PRJ3 (p.89) 10:40 - 12:05		
						Author Interviews & Demonstrations 12:00 - 12:40						
		Lunch										
		AMD5 (p.53) 13:30 - 15:00	FLX4 (p.107) 13:30 - 14:40	FED2 (p.67) 13:30 - 15:10	LCT6 (p.45) 13:30 - 15:00			MEET3 (p.97) 13:30 - 14:50	3D6 (p.80) 13:30 - 14:50	PRJ4 (p.90) 13:30 - 14:30		
		Break										
		AMD6 (p.54) 15:10 - 16:20	FLX5 (p.108) 15:10 - 16:45	FED3 (p.68) 15:20 - 16:00	LCT7 (p.45) 15:10 - 16:15			MEET4 (p.98) 15:10 - 16:30	FMC5 (p.61) 15:10 - 16:10	PRJ5 (p.90) 15:10 - 16:35		
		Break										
		AMD7 (p.54) 16:50 - 18:25						MEET5 (p.99) 16:50 - 17:50		PRJ6 (p.91) 16:50 - 18:00		
						Author Interviews & Demonstrations 18:10 - 18:50						

†Including Short Presentations

IDW '15 Special Topics of Interest Navigator

	Wed., Dec. 9	Thu., Dec. 10				Fri, Dec. 11			
	PM	AM		PM		AM		PM	
Oxide-Semiconductor TFT									
Ohmi 1							AMD3: Oxide TFT: Reliability 9:00 - 10:30 (p.26)	AMD5: Oxide TFT: Applications 13:30 - 15:00 (p.27)	AMD6: Oxide TFT: Solution Processes 15:10 - 16:20 (p.28)
Ohmi 6			AMD2: High Resolution Displays Using LTPS & Oxide TFTs 17:40 - 19:10 (p.26)	AMD1: Oxide TFT: Crystalline Oxide 16:00 - 17:10 (p.25)	AMDp1,FLXp2: Poster 13:40 - 15:40 (p.23) (p.25)				
Augmented Reality and Virtual Reality									
Ohmi 8		INP3: AR & Interactive Systems 9:00 - 10:15 (p.29)							
Ohmi 9						3D4,VHF6: Autostereoscopic & Head-Mounted Displays 9:00 - 10:20 (p.30)	3D5: 3D/Hyper-Realistic Display Systems 10:40 - 12:00 (p.31)	FMC5: Augumented Reality & Virtual Reality 15:10 - 16:10 (p.31)	
Ohmi 10	DES1: Various Visualization Technologies 13:30 - 15:10 (p.29)								PRJ6: Wearable Applications 16:30 - 18:00 (p.32)
Lighting Technologies									
Ohmi 1	OLED2: OLED for Lighting Application 15:10 - 16:30 (p.33)								
Ohmi 2		PH1: Phosphors for Lighting Application 9:00 - 10:10 (p.34)							
Ohmi 6			PHp2: Poster 10:30 - 12:30 (p.34)						
Printed Electronics									
Ohmi 1						AMD4: Printed TFT 10:40 - 11:25 (p.37)			
Ohmi 2							OLED4: Advanced OLED Technologies II 9:00 - 10:00 (p.36)	FLX4: Flexible Printed Electronics 13:30 - 14:40 (p.37)	
Ohmi 6					FLXp3: Poster 13:40 - 15:40 (p.36)				

IDW '15 Session Navigator

	Wednesday, December 9			Thursday, December 10						Friday, December 11						
	PM		16:30-17:10	AM		PM			19:00-19:40	AM		12:00-12:40	PM			18:10-18:50
3D / Hyper-Realistic Displays				Ohmi 9	Ohmi 6	Ohmi 9			Ohmi 6	Ohmi 9		Ohmi 6	Ohmi 9			Ohmi 6
				Holography	Posters		Autostereoscopic 3D Displays*	Wavefront/Light Field Recording & Rendering	A.I.	Autostereoscopic & Head-Mounted Displays*	3D/Hyper-Realistic Display Systems	A.I.	Floating & Omnidirectional Display Systems			A.I.
Active-Matrix Displays						Ohmi 6	Ohmi 1		Ohmi 6	Ohmi 1		Ohmi 6	Ohmi 1			Ohmi 6
						Poster	Oxide TFT: Crystalline Oxide	High Resolution Displays Using LTPS & Oxide TFTs	A.I.	Oxide TFT: Reliability	Printed TFT	A.I.	Oxide TFT: Applications	Oxide TFT: Solution Processes	Advanced Si Technologies	A.I.
Display Electronic Systems	Ohmi 10		Ohmi 6			Ohmi 6	Ohmi 10		Ohmi 6							
	Various Visualization Technologies	Transparent Display Systems	A.I.			Posters	Application for Automobiles	Image Processing	A.I.							
Emissive Technologies				Ohmi 2		Ohmi 6	Ohmi 2	Ohmi 3		Ohmi 8	Ohmi 3	Ohmi 6	Ohmi 3			Ohmi 6
				Phosphors for Lighting Application		A.I.	Phosphor for General	Display Optics & Information Technologies		Phosphor Application	Advanced Technologies & FE Mechanism	A.I.	FEA Fabrication Process & Novel Materials	Flexible Light Source Using Plasma Technologies		A.I.
Emerging Technologies & Novel Applications						Ohmi 6	Ohmi 8		Ohmi 6		Ohmi 8	Ohmi 6		Ohmi 8		Ohmi 6
						Posters	Quantum Dots Applications		A.I.		Novel Materials & Components	A.I.		Nanotechnologies for Display Applications	Emerging Quantum Dots & Nanotechnologies	A.I.
e-Paper	Hiei		Ohmi 6	Ohmi 3		Ohmi 6			Ohmi 6							
	Emerging Technologies for e-Paper	Electrochromic Displays	A.I.	Electrophoretic Displays & Applications		Posters			A.I.							
Flexible Electronics						Ohmi 6		Ohmi 8	Ohmi 6	Ohmi 3	Ohmi 2	Ohmi 6	Ohmi 2			Ohmi 6
						Posters		Flexible Input Devices*	A.I.	Flexible LCDs*	Flexible OLED & OTFT*	A.I.	Flexible Printed Electronics	Flexible Displays & Devices		A.I.
Interactive Technologies	Ohmi 8		Ohmi 6	Ohmi 8		Ohmi 6		Ohmi 8	Ohmi 6							
	Interactive Technologies	Touch Panel	A.I.	AR & Interactive Systems		Posters		Flexible Input Devices*	A.I.							
Human Factor	Ohmi 7		Ohmi 6	Hiei		Ohmi 6	Hiei		Ohmi 6							
	Display Metrology	Display Image Quality	A.I.	Human Factors		Posters	Color & Vision	Color Rendering	A.I.							
Liquid-Crystal Technologies	Ohmi 9		Ohmi 6		Ohmi 6	Ohmi 6	Ohmi 9	Ohmi 2	Ohmi 6	Ohmi 3		Ohmi 6	Ohmi 5			Ohmi 6
	Fascinating High Resolution Panel Technologies	Advanced LC Materials	A.I.		Posters	Posters	Autostereoscopic 3D Displays	New Fast Response LCDs	A.I.	Flexible LCDs*		A.I.	IPS/FFS Display Modes	Innovative Technology for Surface/Interface Control		A.I.
Manufacturing, Process & Equipment					Ohmi 6					Ohmi 5		Ohmi 6				
					Posters					Manufacturing Technologies		A.I.				
Materials & Components					Ohmi 6		Ohmi 3		Ohmi 6		Ohmi 5	Ohmi 6		Ohmi 9		Ohmi 6
					Posters		Materials & Components	Display Optics & Information Technologies	A.I.		Film Technologies	A.I.		Augmented Reality and Virtual Reality		A.I.
							Ohmi 2		Ohmi 6	Ohmi 8		Ohmi 6				
							Phosphor for General		A.I.	Phosphor Application		A.I.				
MEMS													Ohmi 8			Ohmi 6
													MEMS & Related Technologies			A.I.
Organic Light-Emitting Displays & Organic Devices	Ohmi 1		Ohmi 6	Ohmi 1	Ohmi 6				Ohmi 6	Ohmi 2		Ohmi 6				
	Advanced OLED Technologies I	OLED for Lighting Application	A.I.	OLED Materials	Posters				A.I.	Advanced OLED Technologies II	Flexible OLED & OTFT*	A.I.				
Projection & Large Area Displays				Ohmi 10		Ohmi 6			Ohmi 6	Ohmi 10		Ohmi 6	Ohmi 10			Ohmi 6
				Projection Applications		Posters			A.I.	Projection Components & Materials	Solid State Light Source	A.I.	Automotive Display & Lighting	Projection Optics	Wearable Applications	A.I.

A.I. Author Interviews & Demonstrations
* Joint Session

IDW ’15 The 22nd International Display Workshops

December 9-11, 2015 Otsu Prince Hotel, Otsu, Japan

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Until October 30	¥40,000	¥50,000	¥13,000	¥13,000
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*1 ASO: Academic Supporting Organizations. See p.14 as well as “Supporting Organizations and Sponsors” at the end of each workshop section in the Advance Program.

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Domestic Mail after the Conference	¥10,000

Registration

(1) e-Registration (Deadline: November 27, 2015)
Access http://www.idw.or.jp/regist.html

(2) Mail or Fax (Deadline: November 27, 2015)
Registration Form is available via http://www.idw.or.jp/regist.html

(3) On-site

e-Registration: Until Nov. 27

Accommodations

JTB Western Japan, Corp. will handle arrangements for your hotel reservations.
Room rates include breakfast, service charge, and 8% consumption tax.

Reservation

Access http://www.idw.or.jp/accommodation.html
JTB Western Japan, Corp.
Phone : +81-6-6260-4360 FAX : +81-6-6260-4359
Email : westec_op8@west.jtb.jp

Area	No. in map (p18)	Hotel Name	Phone	Rates (per person· per night)			Internet Access		Nearest Train Station
				Single	Twin/Single occupancy	Twin/Double occupancy	LAN	Wi-Fi	
Otsu Area	1	Otsu Prince Hotel	+81-77-521-1111	—	¥12,900	¥7,600	Free*	Free	10 min from Otsu Station by complimentary shuttle bus.
	2	BIWAKO HOTEL	+81-77-524-7111	—	¥16,200	¥9,180	—	Free	5 min by shuttle bus (or 10 min walk) from Otsu Station.
	3	Hotel Blue Lake Ohtsu	+81-77-524-0200	¥5,980	—	—	Free	Free	8 min walk from Otsu Station. 1 min walk from Keihan Hamaōtsu Station.
	4	Hotel Tetora Otsu . Kyoto	+81-77-527-6711	¥7,900	—	—	—	Free	Direct connection from Otsu Station.
Kyoto Area	5	HOTEL HOKKE CLUB KYOTO	+81-75-361-1251	¥12,960	—	—	Free	Free	1 min walk from Kyoto Station (Karasuma Exit).
	6	HOTEL KEIHAN KYOTO	+81-75-661-0321	¥10,800	—	—	Free	Free	1 min walk from Kyoto Station (Hachijo East Exit).
	7	Ibis Styles Kyoto Station	+81-75-693-8444	¥12,080	—	—	Free	Free	1 min walk from Kyoto Station (Hachijo East Exit).

*only 21st - 35th floor

Cancellation Policy

8 days or more days prior to the first night of stay ..... No charge
2 to 7 days before the first night of stay ..... 20% of daily room rate
1 day before the first night of stay ..... 40% of daily room rate
Before 14:00 of the first night of stay ..... 50% of daily room rate
After 14:00 of the first night of stay or no notice given ..... 100% of daily room rate

Hotel Reservation: Until Nov. 20

IDW ’15 Secretariat:
c/o Bilingual Group Ltd.
3-3-6 Kudan Minami, Chiyoda-ku,
Tokyo 102-0074, Japan
Phone: +81-3-3263-1345
FAX: +81-3-3263-1264
E-mail: idw@idw.or.jp

IDW ’15
ADVANCE PROGRAM

http://www.idw.or.jp/