ITE

SID
SOCIETY FOR INFORMATION DISPLAY

IDW '14

THE 21ST 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

TOKI MESSE Niigata Convention Center
Niigata, Japan
December 3 – 5, 2014

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PROGRAM HIGHLIGHTS

The 21st International Display Workshops will be held as IDW '14 for encouraging aggressive research and development of display technologies throughout the world and especially in the Asian region. IDW '14 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 386 papers, including 2 keynote addresses, 2 invited addresses, 97 invited papers and 131 oral presentations, and 154 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 '14 will also present "IDW Best Paper Award" and "IDW Outstanding Poster Paper Award" based on paper originality and technical significance to information displays. Exhibits by universities and display industry-related businesses will also be featured from Wednesday to Friday in parallel with workshops. IDW '14 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 have a long history going back for almost a half century, but they have been intensively investigated only since the first demonstration of amorphous oxide semiconductor TFTs in 2004, and have now become one of the hottest topics in backplane technologies for active-matrix FPDs. Although we were glad to see and touch the first commercial LCD products using the oxide TFTs in 2012 and the subsequent OLED televisions last year, there still remain many technical issues for further evolution toward better performance, high resolution, robust reliability, low fabrication temperature, and broader applications. In IDW '14, the latest achievements involved in the brand-new challenges of these issues will be found. Neither should you miss the brilliant invited talks given by world-leading researchers in oxide TFTs nor the contributed presentations with outstanding results.

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

In recent years, augmented reality (AR) and virtual reality (VR) applications have been making substantial progress with high-performance display devices and sensors including cameras with tracking capabilities and computer graphics technologies. In the 3D-WS sessions, interactive display technologies using high-speed image processing and applications using wide-field imaging will be presented. Presentations in the DES-WS sessions will include AR with a variety of display techniques such as wide-field head mounted display, fog display, head-up display, projection AR, and Diminished Reality (DR). In the DES/VHF-WS, effects of AR/VR will be presented with AR vehicles, 3D display, and monocular AR. In the INP-WS sessions, system design considerations for personal light field displays and MR visual stimulation on tactile sensation will be presented. In the PRJ-WS sessions, see-through glasses and light field display for AR/VR will be presented. In the FMC-WS sessions, floating image displays to represent 3D images of objects, and wide field of view optical combiner for AR head-up displays will be presented.

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 ’14 will be the presentations on novel speckle reduction technology using phase-randomizing deformable mirror applied to direct view LED-BLU with blue laser stimulation of the quantum dots (FMC-WS), high efficient backlight with a nanorod-based optical film and EL sheet driven by wireless power (PH-WS), and flexible white lighting device and tunable lighting device (OLED-WS).

Special Topics of Interest on Printed Electronics (PE)

Printing technologies are opening a new era of electronic devices for their high productivity, low cost, large scale and low environmental-burden fabrication advantages. Printed Electronics, a new Special Topics of Interest, will cover all aspects concerning printed electronics from science and technology viewpoints. This year, five oral sessions will be held including devices and displays fabricated with printing technologies, materials suitable for printing and fabricating process.

Workshop on LC Science and Technologies (LCT)

This workshop covers topics from fundamental studies to recent developments in LCD technologies and LC materials. Of special note this year is the six invited presentations related to fast switching technologies, photo alignment technologies, and LC materials technologies. Moreover, new LCD technologies, such as polymer-stabilized LCDs, 3D-LCDs, IPS-LCDs and ferroelectric LCs are discussed.

Workshop on Active Matrix Displays (AMD)

The AMD workshop covers Si-TFT, oxide TFT, organic TFT, OLED, and integrated 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. We highlight the oxide TFT as a special topic of interest (STI) with four devoted sessions covering a wide area from materials, physics, devices, and processes to applications. We also have prepared one session on printed electronics STI.

Workshop on FPD Manufacturing, Materials and Components (FMC)

The FMC workshop covers recent developments and achievements in the field of flat panel display technologies that include panel manufacturing, materials, measurements and components. The oral

presentations contain more than 15 papers of which 5 papers are invited papers. In addition, more than 25 posters will be presented. This also includes joint sessions with the FLX-WS. This year our workshops include the hot topics of laser processing, bonding and de-bonding technologies, light control by submicron structure and quantum dot lighting. The AR/VR session devoted to special topics of interests will present the recent trends in augmented and virtual reality. In the newly planned demonstration session, three papers from the oral session will be presented on December 5.

Workshop on EL Displays and Phosphors (PH)
This workshop presents the latest achievements on devices and phosphors for emissive displays, general lighting and LCD backlighting. Invited talks will cover emerging technologies such as highly efficient backlight with a nanorod-based optical film, electron-beam excited UV light source and wavelength conversion nano phosphors synthesized by the microreaction method. Display and medical applications with novel phosphors using Cu-complex and EL sheet driven by wireless power will also be presented.

Workshop on Field Emission Displays, CRTs and Plasma Displays (FED)
This workshop wholly covers the fields of FED, CRT and PDP technologies. Recent progress in image sensors and displays with field emitter arrays will be discussed. The invited talk will present an optical nano-imaging system with electron beam excitation for living cells. Additionally, fabrication processes, field emission characteristics and mechanism, and field emitter materials such as CNT and PrO, will be discussed. Since the invention of plasma displays in 1964, there has been much progress. The 50th anniversary talk discusses successes and declines in the PDP business. Also covered in the session are the latest PDP technologies and discharge applications for medical use and plant factories.

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. OLED technologies from micro display to large size TV applications and OLED lighting will be reported. Material and device structure for higher quantum efficiencies supporting these device technologies will also be presented. Soluble OLED materials, printed devices and process technologies focused on Printed Electronics (PE) as STI are special discussions this year.

Workshop on 3D/Hyper-Realistic Displays and Systems (3D)
This workshop focuses on recent progress in 3D, hyper-realistic display systems and related visual sciences. It covers acquisition, processing, 2D/3D conversion, dual-view display, multi-view display, holography, new optical components, crosstalk, measurement, perception, standardization and more for 3D/hyper-reality display technologies. This year, some novel technologies will be presented as invited papers, such as super high frame-rate videos, floating display and electronic holography. Some technologies for omnidirectional video are also introduced, which provided the audience a good opportunity to understand the trends in these fields.

Workshop on Applied Vision and Human Factors (VHF)
The VHF workshop covers all topics on vision, human factors and image quality relating to information display. The oral and poster sessions include lively discussions on the latest topics ranging from fundamental theories to applications. This year, we have five VHF oral sessions on Optical Measurement, Color and OLEDs, Moving Image Quality, Display

Legibility, and Mobile Human Factors and 'Kansei' Evaluation. We also have a joint session with the DES (Display Electronic Systems) workshop on the theme of AR (Augmented Reality) and a joint session with the 3D workshop. Both of these promises groundbreaking interdisciplinary discussions, in addition to our VHF poster session which enables participants to quiz presenters in detail. Two distinguished invited talks will be given in the oral sessions, concerning the latest topics in the FPD Mura Index under the IEC standard and visual effects of curved AMOLEDs.

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

The PRJ workshop covers wearable technologies, vehicle information displays, adaptive headlights, solid-state light sources, projection mapping, augmented reality, 3D measurement, advanced sensing and all the projection technologies. This time, our sessions will focus on miniature optical system technologies, laser and LED materials, projection devices, short throw optics, speckle mitigation, and a laser driving system. Recent studies of advanced technologies such as virtual imaging for wearable and vehicle displays, and an innovative theory of solid-state lighting devices will be presented. There will be 17 oral and four poster presentations, for a total 21 presentations, of which 5 papers are invited presentations.

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-Notebooks, electronic shelf labels, and signage. Various novel technologies such as electrophoretic, electro/thermo chromic, and twisting ball displays will be presented. There will also be reports on front lighting technology and challenging new approaches in e-Paper technologies. Systems, devices, materials, and applications in this field 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. This year will mark the 10th anniversary of the founding of the MEET workshop. Authorities from top research institutions around the world in this field have been invited. Invited speakers are from Univ. of Cambridge, MIT (QD Vision), École Polytechnique, CEA-LETI, Brunel Univ., Kyung Hee Univ., Seoul Nat. Univ., Sungkyunkwan Univ., Lumiode, NanoPhotonica, Ostendo, Pacific Light Technologies, Ritsumeikan Univ. and Tohoku Univ. Together with contributed papers with high-quality content, this workshop invites 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, cooperative operations between display components such as cells and backlights and sensors. This year, we will have 27 papers including seven invited talks and 10 poster presentations (excluding late-news). Sessions related to the driving/low-power technologies for LCD/OLED and vehicle display technologies are planned. We will also highlight AR/VR

technology as a STI including a joint session with VHF-WS.

Workshop on Flexible Electronics (FLX)
Recently, there has been much attention on flexible display technologies which are spread over a wide range of fields from materials science to practical applications. The sessions cover all aspects of the hottest flexible device / wearable / material technologies including OLED, TFT fabrication, substrate, printing / roll-to-roll processes and evaluation.

Workshop on Touch Panels and Input Technologies (INP)
Conventional 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: Illusion and its analysis which comes from difference of the movement states between real and virtual objects and a near eye display system using light-field technology. INP papers will open a new window in displays and interactive technologies.

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 '14. The award winners will be announced on the IDW website and given a plaque after the conference.

Innovative Demonstration Session
This year, IDW introduces new live demonstration for all oral and poster presenters, which provides a larger space and more time for preparation and demonstration than that of the "Author Interviews and Demonstrations". Best Demonstration Award will be awarded to the demonstration that has the biggest impact on the audience.

Exhibition
The IDW '14 Exhibition, which will be held from December 3 through December 5, 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 (Exhibition Hall B).

December 3: 12:40 – 18:00
December 4: 10:00 – 18:00
December 5: 10:00 – 14:00

GENERAL INFORMATION

SPONSORSHIP
IDW '14 is sponsored by the Institute of Image Information and Television Engineers (ITE) and the Society for Information Display (SID).

CONFERENCE SITE
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ON-SITE SECRETARIAT
Telephone and fax machines for IDW '14 use will be temporarily set up in the secretariat room (Room 203) at TOKI MESSE (December 2-5). Phone/Fax: +81-25-246-8511

RECEPTION
A buffet style reception will be held on December 3 from 19:00 to 21:00 at the Room "Continental" (4F) in the Hotel Okura Niigata. 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 2 from 18:00 to 20:00 at Observation Deck (31F) in Hotel Nikko Niigata. 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 '14 includes admission to the conference and a CD-ROM of the proceedings. Detailed information will be announced on the website.

	Until Oct. 31	On and After Nov. 1
Individual Member (ITE/SID/ASO*)	¥ 35,000	¥ 45,000
Non-Member**	¥ 45,000	¥ 55,000
Student***	¥ 8,000	¥ 10,000
Life Member of ITE/SID	¥ 8,000	¥ 10,000
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 '14 committee.
***Photocopy of student ID is required.

Please note that the payment of reduced registration fee is accepted until October 31. The full fee will be charged for payments made on and after November 1. Also note that the number of reception tickets to register on site is limited.

Proceedings Data at the Conference Site
We will provide the data on USB flash drives for copying near Snow Hall. This data can also be accessed from the web-server via the wireless network only in the Free Wi-Fi Area at the conference site.
For **additional proceedings** (CD-ROM)

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 21, 2014.

(2) Mail or Fax Registration
Complete the registration form (download from the website) and send it to the secretariat together with the proof of payment no later than November 21, 2014.

IDW '14 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 2 (Tue.)	17:00 – 20:00
December 3 (Wed.)	8:00 – 18:00
December 4 (Thu.)	8:00 – 18:00
December 5 (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 31**, cancellation is accepted by writing to IDW '14 Secretariat to get refunds for registration and reception. For cancellations received on and **after November 1 or no-shows, refunds will not be made**. However, after IDW '14 closes, a CD-ROM of the proceedings will be sent to the registrants who have paid the registration fees. If it becomes difficult to hold IDW '14 due to the outbreak of infectious diseases and other unavoidable factors, we will substitute the IDW with the mail delivery of the IDW '14 proceedings at a later date to all those who have registered and completed payment.

INQUIRIES
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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
- Japan Ergonomics Society
- The Japanese Liquid Crystal Society
- The Japan Society of Applied Physics
- The Society of Polymer Science, Japan
- The Virtual Reality Society of Japan

FUNDS

- Niigata Prefectural Government
- Niigata Visitors & Convention Bureau (Niigata City)
- The Murata Science Foundation
- Support Center for Advanced Telecommunications Technology Research, Foundation

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

TRAVEL INFORMATION

ACCOMMODATIONS
JTB Kanto Corp. will handle arrangements for your hotel reservations.

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

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

JTB Kanto Corp.
Corporate Sales Division, Niigata, IDW '14 Desk

Phone: +81-25-255-5101 Fax: +81-25-248-7687
Office Hours: 9:30-17:30 (Weekdays only)
E-mail: jtb_niigata_ec@kanto.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 EAST 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 EAST PASS is an economical and flexible rail pass to travel around Eastern Japan.
Japan Rail Pass: http://www.japanrailpass.net/eng/en001.html
JR East Pass: http://www.jreast.co.jp/e/eastpass/

CLIMATE
The average temperature in Niigata during the conference should be around 9°C (48°F) in the daytime and 3°C (37°F) at night.

NIIGATA CITY

Niigata City is located in the center of the Japanese Islands, 250 km north of Tokyo. The city has a long history as a port, and is distinguished for being the site of one of only five international ports opened in 1868 when Japan resumed contact with other countries after nearly 250 years of isolation. Since that time, Niigata has developed into one of the most important modern international ports in Japan. Geographically, the city is distinctive in that it is surrounded by water. The Shinano and Agano, two of the largest rivers in Japan, run through the heart of Niigata before emptying into the sea. Until relatively recently, the city was also crisscrossed by a series of canals used to transport goods. Although the canals have been filled in to make the construction of modern roadways possible, the willows that lined these canals still remain today and now serve to lend a gentle air to the bustling downtown area.

When Niigata is mentioned, many people often think of the area's delicious rice and sake or the city's beautiful sunsets. But the residents of Niigata themselves take pride, rather, in the spirit of hospitality and community that so distinguishes the city.

PLACES OF INTEREST

Sado Island

Sado Island lies isolated from the mainland by 35 km, and is accessible by Sado Kisen, a ferry service from Niigata City which takes two and a half hours by car ferry or only one hour by jet foil. Sado Island has a perimeter of 261 km, and a total area of 855.26 km^2. It is one of the largest islands in Japan. Many tourists come from all over the country every year to visit Sado, an island rich in natural beauty and historic monuments.

Niigata Furusatomura

This facility displays and provides information relating to Niigata's history, culture and sightseeing spots. There are shops selling various traditional crafts and local products, such as sake, rice and fish, for which Niigata is famous throughout the country. In addition, there is a food court serving delicious local dishes.

http://furusatomura.pref.niigata.jp/modules/guide09/index.php?id=2

Bandai Bridge

The present Bandai Bridge is the third to have spanned the Shinano River (the first was built in 1887, the second in 1909 and the third in 1929). The bridge is 307 m long, 21.9 m wide and consists of 6 arches. Not only was it strong enough to survive the Niigata Earthquake during the 1960s, it has also become one of the symbols of Niigata City.

Prefectural Government Memorial Hall

Built in 1884, this building was formerly home to the Niigata Prefectural Assembly. This Western-style building fuses elements of Western and traditional Japanese architecture. It is the only prefectural assembly building dating from the early Meiji era (1868~1912) still in existence in Japan and is designated as a nationally important cultural property.

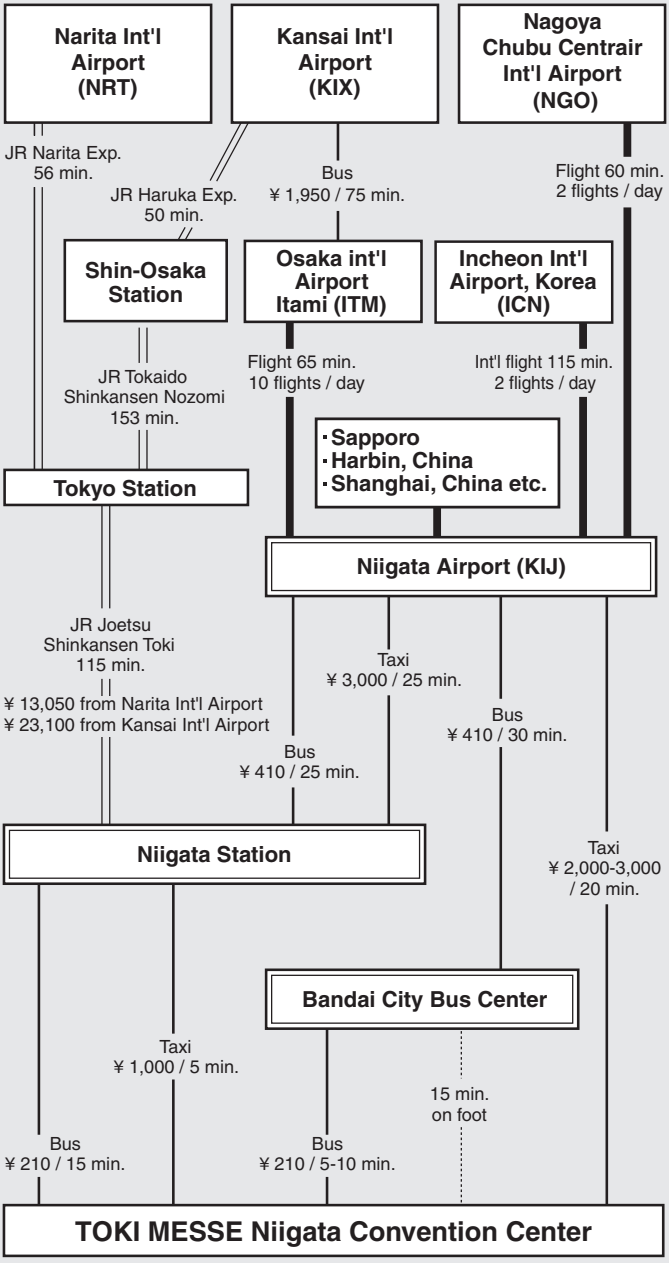
The hall is located in Hakusan Park; 10-minute bus ride from Niigata station.

NIIGATA INFORMATION DESK

Information concerning hotels and tours will be available during the conference period.

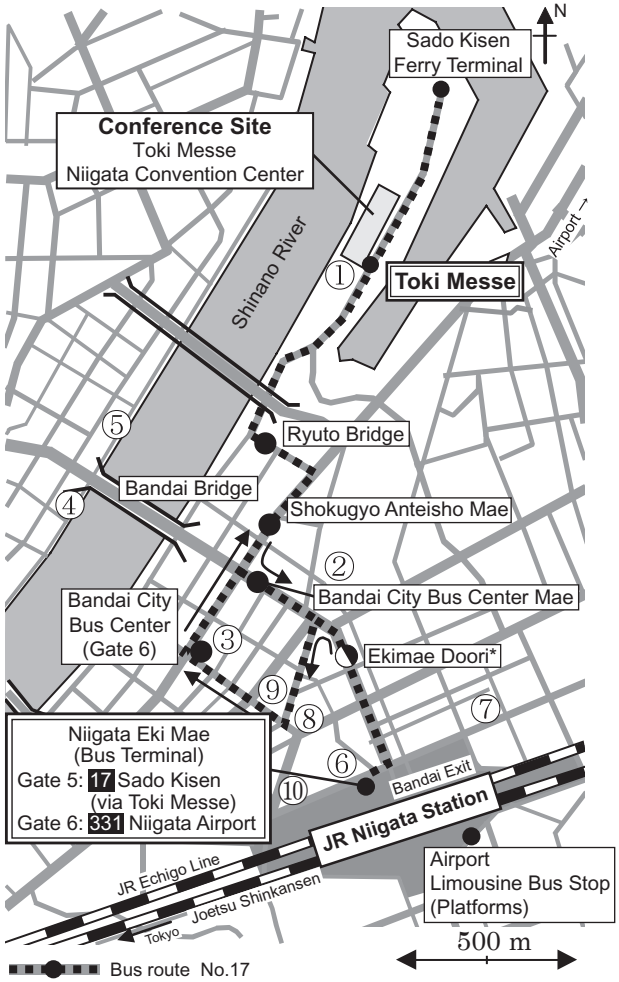
More information is available from these websites:
(Niigata City Online)
http://www.city.niigata.lg.jp/multilingual/e_index/index.html
Niigata Prefecture Tourism Guide
enjoyniigata.com

Access to Conference Site



(as of July, 2014)

Niigata Downtown and Hotel Locations



* Only buses from Toki Messe stop.

①	Hotel Nikko Niigata	Phone: +81-25-240-1888
②	ANA Crowne Plaza Hotel	Phone: +81-25-245-3333
③	Bandai Silver Hotel	Phone: +81-25-243-3711
④	Hotel Okura Niigata	Phone: +81-25-224-6111
⑤	Niigata Grand Hotel	Phone: +81-25-228-6111
⑥	Niigata Tokyu Inn	Phone: +81-25-243-0109
⑦	Hotel Sanroute Niigata	Phone: +81-25-246-6161
⑧	Niigata Toei Hotel	Phone: +81-25-244-7101
⑨	Court Hotel Niigata	Phone: +81-25-247-0505
⑩	Comfort Hotel Niigata	Phone: +81-25-242-0611

Late-News Papers

Due September 25, 2014
Submit a two-page camera-ready manuscript
via IDW website:
http://www.idw.or.jp/latenews.html

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

Live demonstrations of emerging information display technologies

Thursday, December 4, 2014
Friday, December 5, 2014
In the afternoon
Exhibition Hall B

Evening Get-Together with Wine

Tuesday, December 2, 2014
18:00 – 20:00
Observation Deck (31F),
Hotel Nikko Niigata
(Sponsored by Merck Ltd., Japan)
See page 12 for details

Final Program

The final program of IDW '14 will be available on the website (http://www.idw.or.jp/) from the middle of November.

Plenary Sessions

Wednesday, December 3

9:30 - 9:50 **Snow Hall**

Opening

Master of Ceremony: S. Komura, Executive Chair, Japan Display, Japan

Opening Remarks
9:30

K. Azuma, General Chair, IDW

A. Ghosh, President of SID

K. Kubota, President of ITE

A. Mikami, Program Chair, IDW

9:50 - 11:10 **Snow Hall**

Keynote Addresses

Chair: A. Mikami, Program Chair, IDW
Co-Chair: K. Azuma, General Chair, IDW

Keynote Address - 1 Recent Progress on 8K Super Hi-Vision
9:50

M. Sugawara
NHK, Japan

Keynote Address - 2 Display Technologies in Mobile Applications
10:30

J. Hong
Qualcomm, USA

----- 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 '14.
The 2014 award winners will be announced on the IDW website: http://www.idw.or.jp/award.html

11:20 - 12:30 **Snow Hall**

Invited Addresses

Chair: M. Kimura, Vice-Program Chair, IDW
Co-Chair: Y. Gotoh, Vice-Program Chair, IDW

Invited Address - 1 **Research and Development of Oxide TFTs**
11:20

S.-H. K. Park

KAIST, Korea

Invited Address - 2 **Ultraflexible Electronics Using Organic Devices**
11:55

T. Someya

Univ. of Tokyo, Japan

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

Live demonstrations of emerging information display technologies

Thursday, December 4, 2014
Friday, December 5, 2014
In the afternoon
Exhibition Hall B

IDW '14 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, December 2, 2014
Room 301, 3F
TOKI MESSE Niigata Convention Center

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

Special Topics of Interest on Oxide-Semiconductor TFT

Wednesday, December 3

14:00 - 17:00 **Exhibition Hall B**

***Poster* AMDp1: Oxide TFT**

AMDp1 - 1 **Influence of Subthreshold Leakage Current on Temperature Dependence of Oxide TFTs with Light-Induced Bias-Stress**

B.-L. Yeh, C.-N. Lin

AU Optronics, Taiwan

AMDp1 - 2 **A 31-in. FHD AMOLED TV Driven by Amorphous IGZO TFTs**

H.-J. Zhang, C.-Y. Su, W.-H. Li, L.-Q. Shi, X.-W. Lv, Y.-T. Hu, C.-Y. Tseng, Y.-F. Wang, C.-C. Lo

Shenzhen China Star Optoelect. Tech., China

AMDp1 - 3 **5.8-in. Indium Gallium Zinc Oxide TFT LCD with Slim Border**

E.-C. Liu, Y.-H. Chen, S.-C. Chiang, Y.-J. Lu, Y.-Y. Huang

Chunghwa Picture Tubes, Taiwan

AMDp1 - 4 **Investigation of Hysteresis in Dual-Gate a-IGZO TFTs**

Y.-H. Kim, J. G. Um, S. Lee, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 5 **CVD-Free and Low Temperature a-InGaZnO TFTs for Flexible Display Applications**

W.-T. Lin, C.-C. Cheng, C.-Y. Liu, M.-F. Chiang

AU Optronics, Taiwan

AMDp1 - 6 **Investigation for the Time-Dependent Characteristics of Sol-Gel Processed Zinc-Tin-Oxide (ZTO) Transistors**

Y. W. Wang, T. M. Jian, H. H. Wang, W. L. Liu

Nat. Chang Hua Univ. of Education, Taiwan

AMDp1 - 7 **Electrical Characteristics and Stability of Bottom Gate a-InGaZnO TFTs with Different Geometric Structures**

H.-W. Li, C.-P. Chang, H.-H. Lu

AU Optronics, Taiwan

AMDp1 - 8 **Hysteresis Improvements by Introducing a Double-Active-Layered Structure in a-InGaZnO TFTs**

Y.-C. Tsai, F.-J. Chan, P.-T. Liu, H.-P. D.-D. Shieh

Nat. Chiao Tung Univ., Taiwan

AMDp1 - 9 **Self Heating Induced Hole Trapping at Back-Channel Edge of Flexible a-InGaZnO TFTs under Gate and Drain Bias Stress**

G. Li[*], B.-R. Yang[,**], Y.-C. Tsai[***], R. Zhan[*], C.-Y. Su[****], C.-Y. Lee[****], C.-Y. Tseng[****], C.-C. Lo[****], A. Lien[*****], S. Deng[*], N. Xu[*], H.-P. D.-D. Shieh[***]*

[*]Nat. Sun Yat-Sen Univ., China
[**]SYSU-CMU Shunde Int. Joint Res. Inst., China
[***]Nat. Chiao Tung Univ., Taiwan
[****]Shenzhen China Star Optoelect. Tech., China
[*****]TCL Corporate Res., China

AMDp1 - 10 **Enhancement of Performance and Storage Stability of Thin-Film Transistor with InZnSnO/InGaZnO Bilayer Stack Channel Layers**

P.-T. Liu, C.-S. Fuh, C.-H. Chang, C.-C. Chang, X.-Y. Yeh

Nat. Chiao Tung Univ., Taiwan

AMDp1 - 11 **Effects of Negative-Gate-Bias with Illumination Stress on the Hysteresis in the Transfer Curve of a-IGZO TFT Measured by the New Sampling Method**

Y.-J. Chen, Z.-H. Cai, Y.-H. Tai, C.-Y. Chang, C.-J. Li[*], Y.-H. Yeh[*]

Nat. Chiao Tung Univ., Taiwan
[*]ITRI, Taiwan

AMDp1 - 12 **Back-Channel-Etching (BCE) TFT Fabrication with High Etchant-Resistive Solute Metal Oxide Semiconductor**

K.-H. Su, M. Marinkovic, D.-V. Pham, A. Merkulov, A. Hoppe, R. Anselmann

Evonik Inds., Germany

AMDp1 - 13 **Reduction of Hysteresis in Transfer Characteristics of Solution Processed IZTO TFT by Plasma Treatment**

T.-H. Kim, C. Avis, H.-R. Hwang, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 14 **Effect of Solution Processed AlO_x Passivation on Back Channel Etch a-IGZO TFTs**

S. An, M. Mativenga, X. Lee, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 15 **Impact of Negative Bias and Illumination Stress on Channel and Series Resistance of Back Channel Etched a-IGZO TFTs**

M. Chun, J. Um, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

Thursday, December 4

9:00 - 10:15 **Snow Hall A**

AMD1: High Resolution Displays Using LTPS and Oxide TFTs

Chair: T. Kamiya, Tokyo Inst. of Tech., Japan
Co-Chair: K. Takatori, NLT Techs., Japan

AMD1 - 1: 9:00 ***Invited*** **High PPI Technologies for Mobile Displays**

A. Takimoto

Japan Display, Japan

AMD1 - 2: 9:25 ***Invited*** **Advantages of IGZO Platform in Ultra-High-Resolution LCD Applications**

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

Sharp, Japan

AMD1 - 3: 9:50 ***Invited*** **Ultra High-Definition OLED Display Using C-Axis Aligned Crystalline Oxide Semiconductor FETs**

H. Miyake, S. Kawashima, S. Inoue, M. Shiokawa, A. Suzuki, S. Eguchi, Y. Hirakata, J. Koyama, S. Yamazaki, T. Sato[*], T. Shigenobu[*], Y. Ohta[**], S. Mitsui[**], N. Ueda[**], T. Matsuo[**]

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

9:00 - 12:00 **Exhibition Hall B**

Poster FMCp4: Oxide TFT/Printed Electronics

FMCp4 - 1 **Effect of Cu Dopant on Structural and Optical Properties of Zinc Oxide Nanorods**

Z. Jin, T. Umakoshi, Y. Abe, M. Kawamura, K. H. Kim

Kitami Inst. of Tech., Japan

FMCp4 - 2 **Post-Annealing Effect of Zinc Oxide Nanorods Grown on Al-Doped Zinc Oxide Seed Layers**

T. Umakoshi, Y. Abe, M. Kawamura, K. H. Kim

Kitami Inst. of Tech., Japan

FMCp4 - 3 **Application of Microwave-Detected Photoconductivity Decay Technique to Process Monitoring in Back Channel Etching-Type TFT Fabrication**

H. Goto, M. Ochi, H. Tao, S. Morita, Y. Takanashi, A. Hino, K. Hayashi, T. Kugimiya

Kobe Steel, Japan

FMCp4 - 4 **Copper Nano Particle Ink for Reverse Offset Printing and the Application to Thin Film Transistors**

M. Koutake[*,**]

[*]*JAPERA, Japan*
[**]*DIC, Japan*

10:45 - 12:20 **Snow Hall A**

AMD2: Physics of Oxide Semiconductors

Chair: J. Jang, Kyung Hee Univ., Korea
Co-Chair: N. Morosawa, Sony, Japan

AMD2 - 1: 10:45 ***Invited*** **Multiple Origins of Near-VBM Defects and Its Passivation Effects in Amorphous In-Ga-Zn-O**

T. Kamiya, H. Kumomi, H. Hosono

Tokyo Inst. of Tech., Japan

AMD2 - 2: 11:10 ***Invited*** **Thermalization Energy Analysis of the Stability of Amorphous Oxide Thin Film Transistors**

A. J. Flewitt

Univ. of Cambridge, UK

AMD2 - 3: 11:35 ***Invited*** **Origin of High Photoconductivity Gain and Persistent Photoconductivity in Nanocrystalline Oxide Photo-Sensors**

S. Jeon

Korea Univ., Korea

AMD2 - 4 12:00 **Differences in Crystalline Morphology among Crystalline Oxide Semiconductors**

K. Dairiki, Y. Nonaka, M. Koyama, Y. Yamada, A. Shimomura, N. Sorida, E. Takahashi, M. Takahashi, S. Yamazaki

Semiconductor Energy Lab., Japan

----- Lunch -----

13:30 - 14:55 **Snow Hall A**

AMD3: Stability of Oxide TFT

Chair: S. Jeon, Korea Univ., Korea
Co-Chair: M. Kimura, Ryukoku Univ., Japan

AMD3 - 1: 13:30 ***Invited*** **Improved Electrical Characteristics and Stability Using Various Post Treatments on Sputtered In-Ga-Zn-O Thin-Film Transistors**

Y. J. Tak, S. P. Park, H. Lee, H. J. Kim

Yonsei Univ., Korea

AMD3 - 2 13:55 **Reliability of Amorphous InGaZnO Thin Film Transistors with Low Water-Absorption Passivation Layer**

S. Ishikawa, K. Hamada, C. Kulchaisit[*]*, M. Fujii*[*]*, Y. Ishikawa*[*]*, Y. Uraoka*[*]

JSR, Japan
[*]Nara Inst. of S&T, Japan

AMD3 - 3 14:15 **Channel Length Dependent Bias and Light Stability of Bulk Accumulation a-IGZO TFTs with Top Gate Offsets**

S. Lee, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

AMD3 - 4 14:35 **Effect of Parasitic Capacitance on Pixel Compensation Circuit Developed by Oxide TFT**

C.-Y. Lee, W.-C. Hsu, M.-W. Shih, Y. L. Chen, C. C. Huang, L. W. Liu, C. K. Lo, H. G. Chang, L.-F. Lin, C.-H. Liu, L.-H. Chang, Y.-H. Lin

AU Optronics, Taiwan

----- Break -----

15:15 - 16:20 **Snow Hall A**

AMD4: Higher Performance Oxide TFT

Chair: H. J. Kim, Yonsei Univ., Korea
Co-Chair: H. Kumomi, Tokyo Inst. of Tech., Japan

AMD4 - 1: 15:15 ***Invited*** **Bulk Accumulation Oxide TFTs for High Resolution Displays**

J. Jang, M. Mativenga, D. Geng

Kyung Hee Univ., Korea

AMD4 - 2 15:40 **High Mobility Zn-Free Oxide Thin Film Transistors**

T. Kugimiya, M. Ochi, A. Hino, H. Goto, M. Kanamaru[*]

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

AMD4 - 3
16:00

Amorphous In_2O_3-Based Thin Film Transistors Fabricated by Low-Thermal Budget Process with High Mobility and Transparency

C.-H. Chang, C.-S. Fuh, C.-J. Chang, C.-C. Chang, X.-Y. Yeh, P.-T. Liu, H.-H. Lin, K.-L. Fang*, Y.-C. Kao*, C.-L. Lee*, P.-L. Shih*, W.-C. Chang*, I.-M. Lu**

Nat. Chiao Tung Univ., Taiwan
**Yeh Hsin Tech., Taiwan*

Author Interviews and Demonstrations
18:30 – 19:30

The 50th Anniversary Speech of PDPs
"Summing Up of the PDP History and a Peek at Plasma Technologies Beyond Displays"
(FED4 – 1)

Friday, December 5, 2014
15:15 - 15:55
Room 302B
See page 65 for detail

SID Display Week 2015

June 2 – 5, 2015

San Jose Convention Center

San Jose, California, U.S.A.

IMID 2014

August 26 – 29, 2014

EXCO

Daegu, Korea

Special Topics of Interest on Augmented Reality and Virtual Reality

Thursday, December 4

9:00 - 10:35 **Room 302 B**

DES1: Display Technologies in Augmented Reality

Chair: K. Kiyokawa, Osaka Univ., Japan
Co-Chair: K. Makita, AIST, Japan

DES1 - 1: 9:00 ***Invited*** **Diminished Reality Based on Image Inpainting for Visually Removing Real Objects in Real Time**
N. Kawai
Nara Inst. of S&T, Japan

DES1 - 2: 9:25 ***Invited*** **HMD Technologies for AR**
K. Kiyokawa
Osaka Univ., Japan

DES1 - 3: 9:50 ***Invited*** **Fog Display as a Co-creative Expression Media**
Y. Miwa, S. Itai, Y. Terada
Waseda Univ., Japan

DES1 - 4 10:15 **Security Doors**
H.-F. Wang, C.-C. Lan, J.-Y. Huang, T.-H. Lin, H.-S. Chen
Nat. Taiwan Univ. of S&T, Taiwan

----- Break -----

10:45 - 11:50 **Room 301**

PRJ4: Wearable Display

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

PRJ4 - 1: 10:45 ***Invited*** **Laser Light Field Display Based on a Retinal Scanning Array**
M. Ide, K. Yoda, S. Kato
Citizen Holdings, Japan

PRJ4 - 2 11:10 **Compact Optical Engine for Smart Glass**
H. Baba, T. Totani, T. Hashizume
Seiko Epson, Japan

PRJ4 - 3 11:30 **Light-Guide Optical Element Utilizing Notch Filters for See-Through Glasses**

X. Xiao, X. Lin, X. Tan

Beijing Inst. of Tech., China

----- Lunch -----

13:30 - 14:20 **Room 301**

INP3: AR Interactive Systems

Chair: N. Hashimoto, Citizen Holdings, Japan
Co-Chair: N. Balram, Ricoh Innovations, USA

INP3 - 1: 13:30 ***Invited*** **System Design Considerations for Personal Light Field Displays for the Mobile Information Gateway**

N. Balram, W. Wu, I. Tosic, K. Berkner

Ricoh Innovations, USA

INP3 - 2: 13:55 ***Invited*** **Further Analysis of the R-V Dynamics Illusion on Sense of Weight**

S. Hashiguchi, Y. Kataoka, F. Shibata, A. Kimura

Ritsumeikan Univ., Japan

----- Break -----

15:15 - 16:30 **Room 301**

3D2: Interactive 3D Display Technology

Chair: M. Tsuchida, NTT, Japan
Co-Chair: K. Yamamoto, NICT, Japan

3D2 - 1: 15:15 ***Invited*** **Interactive Display Technologies using High-Speed Image Processing**

M. Ishikawa

Univ. of Tokyo, Japan

3D2 - 2: 16:00 ***Invited*** **Floating Digital Signage Based on Aerial Imaging Techniques**

H. Yamamoto[,**,***], S. Suyama[***]*

[*]Utsunomiya Univ., Japan
[**]JST-CREST, Japan
[***]Univ. of Tokushima, Japan

----- Break -----

17:00 - 18:40 **Room 301**

3D3: Omnidirectional Hyper-Realistic System

Chair: K. Yamamoto, NICT, Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D3 - 1: 17:00 ***Invited*** **Characteristic of the Ultra-Realistic Dome Images Estimated from Viewing Behavior**
M. Okyudo, C. Yoshizumi
Wakayama Univ., Japan

3D3 - 2: 17:25 ***Invited*** **Development of Spherical Image Camera RICOH THETA**
M. Shohara
Ricoh, Japan

3D3 - 3: 17:50 ***Invited*** **Omnidirectional Video Streaming System with HMD**
D. Ochi
NTT, Japan

3D3 - 4: 18:15 ***Invited*** **Holographic HMD with Wide Visual Field**
Y. Sakamoto
Hokkaido Univ., Japan

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:00 **Snow Hall B**

FMC4: Augmented Reality and Virtual Reality

Chair: H. Okumura, Toshiba, Japan
Co-Chair: M. Shinohara, Omron, Japan

FMC4 - 1: 9:00 ***Invited*** **Wide Field of View Optical Combiner for Augmented Reality Head-Up Displays**
H. Okumura, A. Hotta, T. Sasaki, K. Horiuchi, N. Okada
Toshiba, Japan

FMC4 - 2 9:20 **Panoramic 3D Floating Image Display Using Dual Concave Reflectors**
K. Li
Wavien, USA

FMC4 - 3
9:40

Fabrication of Special Glass-Beads Retroreflector for Aerial Imaging by Retro-Reflection

Y. Tomiyama[*], S. Suyama[*], H. Yamamoto[,**,***]*

[*]Univ. of Tokushima, Japan
[**]JST-CREST, Japan
[***]Utsunomiya Univ., Japan

----- Break -----

10:45 - 12:15 **Room 201**

DES3/VHF5: System Design and Evaluation in Augmented Reality

Chair: K. Morita, Nat. Traffic Safety & Environment Lab., Japan
Co-Chair: K. Sakamoto, Panasonic, Japan

DES3/ VHF5 - 1: 10:45

Invited **Simulation of Traffic Accident Scenarios with an Augmented Reality Vehicle**

N. Uchida, T. Tagawa, K. Sato

Japan Automobile Res. Inst., Japan

DES3/ VHF5 - 2: 11:10

Invited **The Realistic 3D Image Display Using Direct Light Scanning Method**

H. Horimai, K. Hattori[*], T. Umezaki

3Dragons, Japan
[*]Chubu Univ., Japan

DES3/ VHF5 - 3 11:35

Fast Calculation Algorithm Based on Point-Based Method for CGHs Using Polygon Model

Y. Ogihara, Y. Sakamoto

Hokkaido Univ., Japan

DES3/ VHF5 - 4 11:55

The Superiority of Widespread Monocular Augmented Reality Presentation in a Manual Tracing Task

A. Kitamura, H. Naito, T. Kimura[*], K. Shinohara, T. Sasaki[**], H. Okumura[**]

Osaka Univ., Japan
[*]Kansai Univ. of Welfare Scis., Japan
[**]Toshiba, Japan

Author Interviews and Demonstrations
16:45 – 17:45

Special Topics of Interest on Lighting Technologies

Thursday, December 4

9:00 - 12:00 **Exhibition Hall B**

Poster **FMCp3: Lighting Technologies**

FMCp3 - 1 **Construction of a Backlight Module by Connecting Unit Cells with an Optical Fiber**

T. Kojima, Y. Asakura, T. Ogawa, I. Fujieda
Ritsumeikan Univ., Japan

FMCp3 - 2 **Effect of LGP Outline on Edge-Lit LED TV Design**

H. He, Y.-Y. Qiu
Shenzhen China Star Optoelect. Tech., China

FMCp3 - 3 **Solution for Achieving an Optimized LED Spectrum for LCM**

C.-T. Kang, R. Chang, Y.-Y. Qiu, Z.-J. Su
Shenzhen China Star Optoelect. Tech., China

FMCp3 - 4 **Portable LED Illuminating Device for Personal Photodynamic Treatment and Cell Culturing**

C.-J. Ou, Z.-W. Lin, Y.-S. Lin, P.-Y. Lin, J.-Y. Chen, Y.-K. Tsai
Hsiuping Univ. of S&T, Taiwan

FMCp3 - 5 **A Glare Detection for the High-Brightness LED Display Boards Using a Digital Camera**

Y.-H. Siao, P.-J. Wu[*], B.-J. Pong[**], S.-W. Hsu[**], C.-H. Wen[***], C.-Y. Chen
Nat. Yunlin Univ. of S&T, Taiwan
[*]Nat. Chiao Tung Univ., Taiwan
[**]ITRI, Taiwan
[***]Nat. Taiwan Univ. of S&T, Taiwan

FMCp3 - 6 **The Design of Personal Privacy and Wide Viewing Functions LCM Model Design**

Y. W. Chang
AU Optronics, Taiwan

9:00 - 12:00 **Exhibition Hall B**

Poster **PHp2: Phosphors for Lighting Application**

PHp2 - 1 **Study on Luminescence Property of $Ba_3(Sc_{1-x}Ho_x)_4O_9$ Phosphors**

K. Sugimoto, S. W. Kim, T. Ishigaki, K. Uematsu, K. Toda, M. Sato

Niigata Univ., Japan

PHp2 - 2 **The Effect of Si_3N_4 Sources on the Synthesis and the Luminescence Characteristic of $Sr_{2-x}Si_3O_2N_4$: xEu^{2+}**

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

Nat. Cheng Kung Univ., Taiwan

PHp2 - 3 **A Novel Reddish Orange-Emitting $BaLa_2Si_2S_8$:Eu^{2+} Thiosilicate Phosphor for White Light-Emitting Diodes**

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

Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

13:30 - 16:30 **Exhibition Hall B**

Poster **OLEDp1: OLED Poster**

OLEDp1 - 1 **Flexible Hybrid White Light Emitting Diodes Based on Small Molecules and Quantum Dots**

W. Wu, F. Li, H. Hu, J. Lin, T. Guo

Fuzhou Univ., China

OLEDp1 - 2 **Novel Phosphorescent Host Material for Tunable Hybrid White OLED Devices**

H.-L. Huang, B. Balaganesan, H.-M. Kuo, B.-W. Xie, T. -C. Chao, M. -R. Tseng

eRay Optoelect. Tech., Taiwan

Friday, December 5

9:00 - 10:25 **Room 302A**

PH3: Phosphors for Lighting Application

Chair: W. Chen, Univ. of Texas at Arlington, USA
Co-Chair: K. Ohmi, Tottori Univ., Japan

PH3 - 1: 9:00 ***Invited*** **Quantum Rods Optical Film for Backlight**

E. Shaviv, D. Glozman, Y. Bonfil, U. Banin, S. Amir

Qlight Nanotech, Israel

PH3 - 2
9:25
Thermal Degradation of Green-Emitting $SrSi_2O_2N_2:Eu^{2+}$
C. Wang, R.-J. Xie[*], T. Takeda[*], T. Suehiro[*], N. Hirosaki[*]
Univ. of S&T of China, China
[*]NIMS, Japan

PH3 - 3
9:45
Wireless Power Transmission Method of a Powder EL Sheet Device
K. Wani, T. Kanda, E. Hashimoto
TAZMO, Japan

PH3 - 4
10:05
Studies of Electroluminescence from Individual Phosphor Particles
J. Silver, P. G. Harris
Brunel Univ., UK

----- Break -----

10:45 - 12:05 **Snow Hall B**

FMC5: Lighting Technologies

Chair: F. P. Shevlin, Dyoptyca, Ireland
Co-Chair: K. Käläntär, Global Optical Solutions, Japan

FMC5 - 1
10:45
Light Guide Plate Illumination with Blue Laser and Quantum Dot Emission
F. Shevlin
DYOPTYKA, Ireland

FMC5 - 2
11:05
Design and Perception of an Edge Lit HDR Display
P. Cirkel, L. Penninck
TPVision, Belgium

FMC5 - 3
11:25
Predicting Color Appearance under Non-Uniform Lighting Environments
H.-C. Li[*], P.-L. Sun[*], S.-Y. Chang[*], R. Luo[,**]*
[*]Nat. Taiwan Univ. of S&T, Taiwan
[**]Univ. of Leeds, UK

FMC5 - 4
11:45
The Design of Anti-Glare Lens Applied to Direct LED Panel Lighting
J. W. Pan, Y. K. Hus, C. W. Chiang
Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

Author Interviews and Demonstrations
16:45 – 17:45

Special Topics of Interest on Printed Electronics

Thursday, December 4

9:00 - 10:10 **Snow Hall B**

OLED3: OLED Process Technologies

Chair: T. Shimizu, NHK, Japan
Co-Chair: T. Komatsu, Panasonic, Japan

OLED3 - 1: 9:00 ***Invited*** **OLED Device Fabrication by Ink-Jet Printing Technology**

T. Sonoyama, M. Uchida, T. Sago, S. Watanabe, K. Ishida, M. Ito, M. Ishida, M. Yamada, Y. Okawa, S. Tanabe, H. Kiguchi

Seiko Epson, Japan

OLED3 - 2: 9:25 ***Invited*** **Important Technologies of Ink Jet System for OLED Display Fabrication**

T. Hayashi, K. Oshima, S. Takei, A. Shimamura, Y. Konta, S. Tanabe**

Tokyo Electron, Japan
**Seiko Epson, Japan*

OLED3 - 3 9:50 **UV-Activated Transparent Desiccant for Practical OLED Encapsulation Process**

H. Katsui, T. Miyasako, T. Arai, M. Takahashi, N. Onimaru, N. Takamatsu, T. Yamamura, K. Konno, K. Kuriyama

JSR, Japan

----- Break -----

10:45 - 11:55 **Snow Hall B**

OLED4: OLED Materials (1)

Chair: K. Nakayama, Yamagata Univ., Japan
Co-Chair: K. Monzen, Nissan Chem. Inds., Japan

OLED4 - 1: 10:45 ***Invited*** **Blue Fluorescent OLEDs for Printed Display Applications**

E. Boehm, C. Pflumm, H. Heil, S. Meyer, L.-I. Rodriguez, B. Burkhart, F. Eckes, K. Stegmaier, H. Buchholz

Merck KGaA, Germany

OLED4 - 2: 11:10 ***Invited*** **Development and Manufacture of Solution-Processed White OLED Lighting Panel**

T. Ogata

Mitsubishi Chem. Group S&T Res. Ctr., Japan

OLED4 - 3 11:35 **The Soluble Hole Injection Materials and the Inks Applicable to OLED Devices**

N. Otani, H. Koga, S. Moriyama, T. Endo, N. Nakaie, K. Monzen

Nissan Chem. Inds., Japan

----- Lunch -----

13:30 - 14:45 **Snow Hall B**

FLX3: Advanced Printing Technologies

Chair: M. Ito, Toppan Printing, Japan
Co-Chair: H. Hirata, Toray Eng., Japan

FLX3 - 1: 13:30 ***Invited*** **Novel Roll-to-Roll Screen Printing Machine for Flexible Devices**

D. Kobayashi, N. Naoi[*], T. Suzuki[*], T. Sasaki[*], T. Furukawa[**]

Tokai Shoji, Japan
[*]Tokai Seiki, Japan
[**]Yamagata Univ., Japan

FLX3 - 2: 13:55 ***Invited*** **Technologies for Fully Integrated Printed Displays**

N. Fruehauf, M. Strecker, D. Benzel, S. Hoehla, J. Remmele

Univ. of Stuttgart, Germany

FLX3 - 3: 14:20 ***Invited*** **Flexible Transparent Conductive Films Based on Metal Mesh Technology**

Z. Cui

Chinese Ac. of Sci., China

13:30 - 16:30 **Exhibition Hall B**

Poster OLEDp2: OLED Poster

OLEDp2 - 1 13:30 **High-Mobility Solution-Processed Organic Field-Effect Transistors with Channel Length of 5 µm**

R. Nakamichi, T. Nagase, T. Kobayashi, Y. Sadamitsu[*], H. Naito

Osaka Pref. Univ., Japan
[*]Nippon Kayaku, Japan

15:15 - 16:25 **Snow Hall B**

FLX4: Printed TFT Technologies

Chair: Y. Uraoka, NAIST, Japan
Co-Chair: T. Furukawa, Yamagata Univ., Japan

FLX4 - 1: 15:15 ***Invited*** **Fully Printed Flexible TFT Array for Electronic Paper**

M. Ito, H. Chujo, K. Murata, M. Nishizawa, N. Ikeda, K. Hatta, M. Yokoo, R. Matsubara, O. Kina, S. Akao, T. Yamamoto, M. Takei, M. Kumagai, M. Ishizaki, K. Morosawa, M. Matsumura

Toppan Printing, Japan

FLX4 - 2: 15:40 ***Invited*** **Fully-Printed Organic TFTs and Circuits on Ultra-Flexible Substrates**

K. Fukuda, Y. Takeda, S. Tokito

Yamagata Univ., Japan

FLX4 - 3 16:05 **Flexible Electronics on Backmolded Plastic Foils**

P. Gaucci, N. Fruehauf, A. Ilchmann[*], B. Polzinger[*], W. Eberhardt[*], H. Kueck[*]

Univ. of Stuttgart, Germany
[*]HSG-IMAT, Germany

----- Break -----

17:00 - 18:10 **Snow Hall A**

AMD5: Printed Electronics

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

AMD5 - 1: 17:00 ***Invited*** **High Performance Polymer Semiconductors**

A. Ohno

Mitsubishi Chem., Japan

AMD5 - 2: 17:25 ***Invited*** **Flexible Printed Organic TFT Array and Integrated Circuits**

S. Tokito

Yamagata Univ., Japan

AMD5 - 3 17:50 **Alignment Control of Patterned Organic Semiconductor Crystals in Short Channel Organic Thin-Film Transistors**

Y. Fujisaki, D. Takahashi[*], Y. Nakajima, H. Tsuji, M. Nakata, T. Yamamoto

NHK, Japan
[*]Tokyo Univ. of Sci., Japan

Author Interviews and Demonstrations
18:30 – 19:30

Workshop on LC Science and Technologies

Wednesday, December 3

14:00 - 15:05 **Room 301**

LCT1: Fast Switching LCD

Chair: M. Ozaki, Osaka Univ., Japan
Co-Chair: H. Okada, Univ. of Toyama, Japan

LCT1 - 1: 14:00 ***Invited*** **Fast Response LCDs by Doping Nanoparticles and Optical Compensation**

S. Kobayashi, Y. Shiraishi, H. Takatsu[*]

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

LCT1 - 2 14:25 **Polymer-Wall Stabilization of Ultra-Short-Pitch TN-LCDs**

M. Akimoto, S. Ando, T. Yamashita, K. Takatoh

Tokyo Univ. of Sci., Yamaguchi, Japan

LCT1 - 3 14:45 **Fast Swiching PSV-FLC Using Low Birefringence LCs**

T. Fijisawa, Y. Aoki, A. Koiso, I. Nishiyama, H. Takatsu, S. Kobayashi[*]

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

----- Break -----

15:45 - 17:10 **Room 301**

LCT2: Novel Optics for LCD

Chair: S. Kobayashi, Tokyo Univ. of Sci., Yamaguchi, Japan
Co-Chair: M. Suzuki, Merck, Japan

LCT2 - 1: 15:45 ***Invited*** **Scattering-Free, Microsecond Electro-Optic Response Based on Polymer/LC Nanocomposite**

M. Ozaki, Y. Inoue[*], J. Kobashi, K. Kim, H. Yoshida

Osaka Univ., Japan
[*]Kyoto Univ., Japan

LCT2 - 2 16:10 **Stacked LC Micro Lens Array Designed for 2D/3D Switching on Compound-Eye Camera**

M. Ito, Y. Kizu, H. Kwon, Y. Kizaki, K. Suzuki, R. Ueno, M. Kobayashi, H. Funaki, Y. Nakai

Toshiba, Japan

LCT2 - 3 16:30 **Polarizer-Free Imaging of LC Lens Using Reference Image**

C. Cui, R. Bao, S. Yu, X. Gong, M. Ye

SuperD, China

LCT2 - 4 16:50 **Anisotropic Photoluminescence from an LC-Dye System**

T. Masuda, T. Kamimura, S. Itaya, I. Fujieda

Ritsumeikan Univ., Japan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

10:45 - 11:55 **Marine Hall**

LCT3: Photo Alignment

Chair: R. Yamaguchi, Akita Univ., Japan
Co-Chair: K. Miyachi, Sharp, Japan

LCT3 - 1: 10:45 ***Invited*** **Ideal Photoalignment Technology for IPS-LCDs**

N. Kunimatsu, H. Sonoda, Y. Hyodo, Y. Tomioka

Japan Display, Japan

LCT3 - 2: 11:10 ***Invited*** **New Photo-Aligning Materials Having Cinnamoyl Moieties**

H. Hasebe, K. Maruyama, M. Takashima, S. Amano, F. Kodera, S. Yamamoto, I. Nishiyama, Y. Saito, Y. Kadomoto, H. Ito, K. Obi, T. Kusumoto, H. Takatsu, Y. Tani, K. Yamauchi, K. Fujisawa, H.-S. Kwok[*], V. G. Chigrinov[*], M. Schadt[**]

DIC, Japan
[*]Hong Kong Univ. of S&T, Hong Kong
[**]MS High-Tech Consulting, Switzerland

LCT3 - 3 11:35 **Optimization of In-Plane LC Photo Alignment Technology for Large Size Panel**

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

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

----- Lunch -----

13:30 - 14:35 **Marine Hall**

LCT4: LC Materials

Chair: S. Ishihara, Osaka Inst. of Tech., Japan
Co-Chair: H. Hasebe, DIC, Japan

LCT4 - 1: 13:30 ***Invited*** **High-HTP Macrocyclized Phenyl Cinnamate Dimer Utilizable as Photo-Responsive Chiral Dopant for Nematic LCs**

J. Watanabe

Tokyo Inst. of Tech., Japan

LCT4 - 2 13:55 **Photo Switchable Bent and U-Shaped LCs**

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

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

LCT4 - 3 14:15 **LC Semiconductors Bearing Cyclotetrasiloxane Rings and Their Ring-Opening Polymerization**

M. Funahashi, Y. Funatsu, K. Takenami, K. Seike, A. Sonoda[*]

Kagawa Univ., Japan
[*]JAIST, Japan

----- Break -----

15:15 - 16:20 **Marine Hall**

LCT5: LC Evaluation

Chair: H. Wakemoto, Japan Display, Japan
Co-Chair: M. Inoue, Apple, Japan

LCT5 - 1: 15:15 ***Invited*** **Azimuth Easy Axis and Anchoring Control of Rubbed Polymers by LC Mixture**

R. Yamaguchi, M. Nishimura, A. Kodate

Akita Univ., Japan

LCT5 - 2 15:40 **A Method to Determine the Degree of Jet Mura for Curved Display**

K. H. Chen, W. F. Sung, W. S. Kao, Y. Cheng

AU Optronics, Taiwan

LCT5 - 3 16:00 **Premeditate Display Quality of FFS-LCD Using Negative LC by DC Stress**

Y. Tang, H. Cui, X. Jiang, J. Liu, P. Liao, C. Yu

Infovision Optoelect., China

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 12:00 **Exhibition Hall B**

Poster LCTp1: Fast Switching LCD

LCTp1 - 1 **Electro-Optic Response of a Chiral Nematic LC with Low Dielectric Anisotropy**

I. Onodera, M. Kimura

Nagaoka Univ. of Tech., Japan

LCTp1 - 2 **Enhanced Optical Response in Homogeneously Aligned LC Cells via He-Ne Laser Holographic Exposure**

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

Nat. Cheng Kung Univ., Taiwan

LCTp1 - 3 **Effect of Polymer Wall Formation on Stability and Electro-Optical Properties of Reverse TN-LCDs**

M. Akimoto, K. Nagao, K. Takatoh

Tokyo Univ. of Sci., Yamaguchi, Japan

9:00 - 12:00 **Exhibition Hall B**

Poster LCTp2: LC Application

LCTp2 - 1 **The See-Through Screen Based on a Polarization-Dependent LC Device**

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

Nat. Changhua Univ. of Education, Taiwan

LCTp2 - 2 **Evaluation of Resolving Capabilities at Different Incident Angles of an Imaging System with LC Lens**

R. Bao, C. Cui, S. Yu, X. Gong, M. Ye

SuperD, China

LCTp2 - 3 **LC Tuning Slow Light Photonic Crystal Waveguide**

G.-H. Li, F.-L. Hsiao

Nat. Changhua Univ. of Education, Taiwan

LCTp2 - 4 **Surface Morphology Investigation of UV-Glue Composition in PDLC Films**

C.-T. Su, C.-S. Hsieh, J.-T. Lien

Chunghwa Picture Tubes, Taiwan

LCTp2 - 5 **Features of the Optical Response and Relaxation of the Nematic LC Doped with CdSe/ZnS Quantum Dots**

I. Galin, E. Konshina, D. Shcherbinin, E. Gavrish

ITMO Univ., Russia

LCTp2 - 6 **A New Low-Power and High Aperture Ratio for High-Resolution Mobile TN Panels**

W. Q. Song, D. L. Fu, J. F. Wu, Y. C. Chang

InfoVision Optoelect., China

LCTp2 - 7 **Study on Improving the Image Quality Using Single Compensation Film**

B. Hai, C.-T. Kang

Shenzhen China Star Optoelect. Tech., China

9:00 - 12:00 **Exhibition Hall B**

Poster LCTp3: Photo Alignment

LCTp3 - 1 **Multi-Domain IPS LC Cell Using the Photo Alignment Method**

B.-J. Mun, K.-W. Park, G.-D. Lee

Dong-A Univ., Korea

LCTp3 - 2 **Localized Cell Parameter Comparison of Photo Alignment and Rubbing Type in FFS-LCD**

K.-T. Huang, Y.-W. Hung, R.-X. Fang, Y.-T. Chao, T. Lee, C. Lee

HannStar Display, Taiwan

LCTp3 - 3 **Fast Switchable Ferroelectric LC Grating and Analysis for the Parameters**

Y. Ma, L. Shi, A. K. Srivastava, V. G. Chigrinov, H. S. Kwok

Hong Kong Univ. of S&T, Hong Kong

9:00 - 12:00 **Exhibition Hall B**

Poster LCTp4: LC Materials

LCTp4 - 1 **Modeling of LC/Dendrimer Mixtures by Using Hard Repulsive Molecules**

T. Koda, M. Uchida, A. Nishioka, O. Haba, K. Yonetake, M. Kwak[*]*, Y. Momoi*[*]*, N. Kim*[*]*, S. Hong*[*]*, D. Kang*[*]*, Y. Choi*[*]

Yamagata Univ., Japan
[*]LG Display, Korea

LCTp4 - 2 **Single Hydrogen-Bonded Discotic Complexes: A Simple and Robust Route to Room Temperature Columnar Mesophases**

I.-T. Sohn, B.-S. Lee, Y. J. Byun, J. H. Lee

Myongji Univ., Korea

LCTp4 - 3 **Pretilt Angle Control of LC on Doping Silica Nanoparticles and Reactive Monomers**

C.-J. Hsu, C.-C. Kuo, C.-D. Hsieh, C.-Y. Huang

Nat. Changhua Univ. of Education, Taiwan

9:00 - 12:00 **Exhibition Hall B**

Poster **LCTp5: LC Evaluation**

LCTp5 - 1 **Analysis on Flexoelectric Effect in AH-IPS LC Mode under Low Frame Rate Driving Using a High Speed Camera**

D.-J. Lee[,**], G.-Y. Shim[**], S.-H. Yoo[**], J.-H. Lee[*], J.-H. Baek[*], H. Choi[*], H.-R. Kim[**]*

[*]LG Display, Korea

[**]Kyungpook Nat. Univ., Korea

LCTp5 - 2 **Proposal of Measuring the Difference in Flexoelectric Coefficient of a TN-LC Cell by Transmission Ellipsometry**

F. B. Z. Arif, H. Matsumoto, M. Kimura, T. Akahane

Nagaoka Univ. of Tech., Japan

LCTp5 - 3 **Analysis of the Vertical Crosstalk of Advanced Super Dimension Switch Mode TFT-LCD**

S. Wang, J. Li, S. Q. Huang, W. Xue, Y. J. Wang, Y. Shi, Q. Y. Guo, K. H. Park, Y. B. Lee, S. K. Lee

Hefei BOE Optoelect. Tech., China

LCTp5 - 4 **Measurement for Sum of Flexoelectric Coefficients for Nematic LCs by Using Capacitance Characteristics under Applying the DC Voltage**

S. Nakamura, Y. Kudoh, T. Takahashi

Kogakuin Univ., Japan

EXHIBITION

12:40 – 18:00 Wednesday, Dec. 3, 2014
10:00 – 18:00 Thursday, Dec. 4, 2014
10:00 – 14:00 Friday, Dec. 5, 2014

Exhibition Hall B
TOKI MESSE Niigata Convention Center

Free admission with your registration name tag

Workshop on Active Matrix Displays

Wednesday, December 3

14:00 - 17:00 **Exhibition Hall B**

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

AMDp1 - 1 **Influence of Subthreshold Leakage Current on Temperature Dependence of Oxide TFTs with Light-Induced Bias-Stress**

B.-L. Yeh, C.-N. Lin

AU Optronics, Taiwan

AMDp1 - 2 **A 31-in. FHD AMOLED TV Driven by Amorphous IGZO TFTs**

H.-J. Zhang, C.-Y. Su, W.-H. Li, L.-Q. Shi, X.-W. Lv, Y.-T. Hu, C.-Y. Tseng, Y.-F. Wang, C.-C. Lo

Shenzhen China Star Optoelect. Tech., China

AMDp1 - 3 **5.8-in. Indium Gallium Zinc Oxide TFT LCD with Slim Border**

E.-C. Liu, Y.-H. Chen, S.-C. Chiang, Y.-J. Lu, Y.-Y. Huang

Chunghwa Picture Tubes, Taiwan

AMDp1 - 4 **Investigation of Hysteresis in Dual-Gate a-IGZO TFTs**

Y.-H. Kim, J. G. Um, S. Lee, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 5 **CVD-Free and Low Temperature a-InGaZnO TFTs for Flexible Display Applications**

W.-T. Lin, C.-C. Cheng, C.-Y. Liu, M.-F. Chiang

AU Optronics, Taiwan

AMDp1 - 6 **Investigation for the Time-Dependent Characteristics of Sol-Gel Processed Zinc-Tin-Oxide (ZTO) Transistors**

Y. W. Wang, T. M. Jian, H. H. Wang, W. L. Liu

Nat. Chang Hua Univ. of Education, Taiwan

AMDp1 - 7 **Electrical Characteristics and Stability of Bottom Gate a-InGaZnO TFTs with Different Geometric Structures**

H.-W. Li, C.-P. Chang, H.-H. Lu

AU Optronics, Taiwan

AMDp1 - 8 **Hysteresis Improvements by Introducing a Double-Active-Layered Structure in a-InGaZnO TFTs**

Y.-C. Tsai, F.-J. Chan, P.-T. Liu, H.-P. D.-D. Shieh

Nat. Chiao Tung Univ., Taiwan

AMDp1 - 9 **Self Heating Induced Hole Trapping at Back-Channel Edge of Flexible a-InGaZnO TFTs under Gate and Drain Bias Stress**

G. Li[*], B.-R. Yang[,**], Y.-C. Tsai[***], R. Zhan[*], C.-Y. Su[****], C.-Y. Lee[****], C.-Y. Tseng[****], C.-C. Lo[****], A. Lien[*****], S. Deng[*], N. Xu[*], H.-P. D.-D. Shieh[***]*

[*]Nat. Sun Yat-Sen Univ., China
[**]SYSU-CMU Shunde Int. Joint Res. Inst., China
[***]Nat. Chiao Tung Univ., Taiwan
[****]Shenzhen China Star Optoelect. Tech., China
[*****]TCL Corporate Res., China

AMDp1 - 10 **Enhancement of Performance and Storage Stability of Thin-Film Transistor with InZnSnO/InGaZnO Bilayer Stack Channel Layers**

P.-T. Liu, C.-S. Fuh, C.-H. Chang, C.-C. Chang, X.-Y. Yeh

Nat. Chiao Tung Univ., Taiwan

AMDp1 - 11 **Effects of Negative-Gate-Bias with Illumination Stress on the Hysteresis in the Transfer Curve of a-IGZO TFT Measured by the New Sampling Method**

Y.-J. Chen, Z.-H. Cai, Y.-H. Tai, C.-Y. Chang, C.-J. Li[*], Y.-H. Yeh[*]

Nat. Chiao Tung Univ., Taiwan
[*]ITRI, Taiwan

AMDp1 - 12 **Back-Channel-Etching (BCE) TFT Fabrication with High Etchant-Resistive Solute Metal Oxide Semiconductor**

K.-H. Su, M. Marinkovic, D.-V. Pham, A. Merkulov, A. Hoppe, R. Anselmann

Evonik Inds., Germany

AMDp1 - 13 **Reduction of Hysteresis in Transfer Characteristics of Solution Processed IZTO TFT by Plasma Treatment**

T.-H. Kim, C. Avis, H.-R. Hwang, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 14 **Effect of Solution Processed AlO_x Passivation on Back Channel Etch a-IGZO TFTs**

S. An, M. Mativenga, X. Lee, J. Jang

Kyung Hee Univ., Korea

AMDp1 - 15 **Impact of Negative Bias and Illumination Stress on Channel and Series Resistance of Back Channel Etched a-IGZO TFTs**

M. Chun, J. Um, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

14:00 - 17:00 **Exhibition Hall B**

Poster AMDp2: Active-Matrix Devices

AMDp2 - 1 **Study of TFT-LCD Greenish Phenomenon**

W. Qin, H. Kim, J.-Y. Zhao, Y. Wei, C.-F. Zhang, L. Wang, S. Kim, J.-J. Mok

BOE Tech. Group, China

AMDp2 - 2 **Driving Circuit of Fast Current Programming and Leakage Current Compensation for External Compensation on AMOLED Panel**

C.-C. Chen, K.-Y. Lee, H.-S. Lin, L.-H. Chang, Y.-H. Lin

AU Optronics, Taiwan

AMDp2 - 3 **Active Matrix Organic Light Emitting Diode Compensative Circuit with Amorphous Silicon TFTs**

G.-T. Zheng, P.-T. Liu[*], R.-J. Chen[*], C.-Y. Tsai[*], H.-H. Hsieh[**]

Nat. Tsing Hua Univ., Taiwan
[*]Nat. Chiao Tung Univ., Taiwan
[**]Giantplus Tech., Taiwan

AMDp2 - 4 **Simple Pixel Circuit Using LTPS TFTs with Mirror Compensation for AMOLED Displays**

P.-S. Chen, Y.-T. Liu, F.-H. Chen, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp2 - 5 **New AMOLED Pixel Circuit to Compensate for V_{TH} Variation with an Eliminated V_{DD} Line**

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

Nat. Cheng Kung Univ., Taiwan

AMDp2 - 6 **Circuit of Gate Driver on Array with Direct Threshold Voltage Compensation for the Pull-Down Transistors**

Z.-H. Cai, Y.-J. Chen, Y.-H. Tai, C.-Y. Chang, C.-L. Wu[*], Y.-H. Yeh[*]

Nat. Chiao Tung Univ., Taiwan
[*]ITRI, Taiwan

AMDp2 - 7 **Design of High Reliable and Self-Healing Integrated Gate Driving Circuit Applied for Amorphous Silicon TFT-LCDs**

C. Dai, T. Lee, T.-C. Lai, C.-C. Lo, A. Lien[*]

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

Thursday, December 4

9:00 - 10:15 **Snow Hall A**

AMD1: High Resolution Displays Using LTPS and Oxide TFTs
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: T. Kamiya, Tokyo Inst. of Tech., Japan
Co-Chair: K. Takatori, NLT Techs., Japan

AMD1 - 1: 9:00 ***Invited*** **High PPI Technologies for Mobile Displays**

A. Takimoto

Japan Display, Japan

AMD1 - 2: 9:25 ***Invited*** **Advantages of IGZO Platform in Ultra-High-Resolution LCD Applications**

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

Sharp, Japan

AMD1 - 3: 9:50 ***Invited*** **Ultra High-Definition OLED Display Using C-Axis Aligned Crystalline Oxide Semiconductor FETs**

H. Miyake, S. Kawashima, S. Inoue, M. Shiokawa, A. Suzuki, S. Eguchi, Y. Hirakata, J. Koyama, S. Yamazaki, T. Sato[*], T. Shigenobu[*], Y. Ohta[**], S. Mitsui[**], N. Ueda[**], T. Matsuo[**]

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

----- Break -----

10:45 - 12:20 **Snow Hall A**

AMD2: Physics of Oxide Semiconductors
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: J. Jang, Kyung Hee Univ., Korea
Co-Chair: N. Morosawa, Sony, Japan

AMD2 - 1: 10:45 ***Invited*** **Multiple Origins of Near-VBM Defects and Its Passivation Effects in Amorphous In-Ga-Zn-O**

T. Kamiya, H. Kumomi, H. Hosono

Tokyo Inst. of Tech., Japan

AMD2 - 2: 11:10 ***Invited*** **Thermalization Energy Analysis of the Stability of Amorphous Oxide Thin Film Transistors**

A. J. Flewitt

Univ. of Cambridge, UK

AMD2 - 3: 11:35 ***Invited*** **Origin of High Photoconductivity Gain and Persistent Photoconductivity in Nanocrystalline Oxide Photo-Sensors**

S. Jeon

Korea Univ., Korea

AMD2 - 4 12:00 **Differences in Crystalline Morphology among Crystalline Oxide Semiconductors**

K. Dairiki, Y. Nonaka, M. Koyama, Y. Yamada, A. Shimomura, N. Sorida, E. Takahashi, M. Takahashi, S. Yamazaki

Semiconductor Energy Lab., Japan

----- Lunch -----

13:30 - 14:55 **Snow Hall A**

AMD3: Stability of Oxide TFT

Special Topics of Interest on Oxide-Semiconductor TFT

Chair: S. Jeon, Korea Univ., Korea
Co-Chair: M. Kimura, Ryukoku Univ., Japan

AMD3 - 1: 13:30 ***Invited*** **Improved Electrical Characteristics and Stability Using Various Post Treatments on Sputtered In-Ga-Zn-O Thin-Film Transistors**

Y. J. Tak, S. P. Park, H. Lee, H. J. Kim

Yonsei Univ., Korea

AMD3 - 2 13:55 **Reliability of Amorphous InGaZnO Thin Film Transistors with Low Water-Absorption Passivation Layer**

S. Ishikawa, K. Hamada, C. Kulchaisit[*], M. Fujii[*], Y. Ishikawa[*], Y. Uraoka[*]

JSR, Japan
[*]Nara Inst. of S&T, Japan

AMD3 - 3 14:15 **Channel Length Dependent Bias and Light Stability of Bulk Accumulation a-IGZO TFTs with Top Gate Offsets**

S. Lee, M. Mativenga, J. Jang

Kyung Hee Univ., Korea

AMD3 - 4
14:35

Effect of Parasitic Capacitance on Pixel Compensation Circuit Developed by Oxide TFT

C.-Y. Lee, W.-C. Hsu, M.-W. Shih, Y.-L. Chen, C.-C. Huang, L.-W. Liu, C.-K. Lo, H.-G. Chang, L.-F. Lin, C.-H. Liu, L.-H. Chang, Y.-H. Lin

AU Optronics, Taiwan

----- Break -----

15:15 - 16:20 **Snow Hall A**

AMD4: Higher Performance Oxide TFT
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: H. J. Kim, Yonsei Univ., Korea
Co-Chair: H. Kumomi, Tokyo Inst. of Tech., Japan

AMD4 - 1:
15:15

Invited **Bulk Accumulation Oxide TFTs for High Resolution Displays**

J. Jang, M. Mativenga, D. Geng

Kyung Hee Univ., Korea

AMD4 - 2
15:40

High Mobility Zn-Free Oxide Thin Film Transistors

T. Kugimiya, M. Ochi, A. Hino, H. Goto, M. Kanamaru[*]

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

AMD4 - 3
16:00

Amorphous In_2O_3-Based Thin Film Transistors Fabricated by Low-Thermal Budget Process with High Mobility and Transparency

C.-H. Chang, C.-S. Fuh, C.-J. Chang, C.-C. Chang, X.-Y. Yeh, P.-T. Liu, H.-H. Lin[*], K.-L. Fang[*], Y.-C. Kao[*], C.-L. Lee[*], P.-L. Shih[*], W.-C. Chang[*], I.-M. Lu[*]

Nat. Chiao Tung Univ., Taiwan
[*]Yeh Hsin Tech., Taiwan

----- Break -----

17:00 - 18:10 **Snow Hall A**

AMD5: Printed Electronics
Special Topics of Interest on Printed Electronics

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

AMD5 - 1:
17:00

Invited **High Performance Polymer Semiconductors**

A. Ohno

Mitsubishi Chem., Japan

AMD5 - 2: 17:25 ***Invited*** **Flexible Printed Organic TFT Array and Integrated Circuits**

S. Tokito

Yamagata Univ., Japan

AMD5 - 3 17:50 **Alignment Control of Patterned Organic Semiconductor Crystals in Short Channel Organic Thin-Film Transistors**

Y. Fujisaki, D. Takahashi[*]*, Y. Nakajima, H. Tsuji, M. Nakata, T. Yamamoto*

NHK, Japan
[*]*Tokyo Univ. of Sci., Japan*

Author Interviews and Demonstrations
18:30 – 19:30

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

IDW Best Paper Award

IDW Outstanding Poster Paper Award

These awards will go to the most outstanding papers selected from those presented at IDW ’14.
The 2014 award winners will be announced on the IDW website: http://www.idw.or.jp/award.html

Workshop on FPD Manufacturing, Materials and Components

Wednesday, December 3

14:00 - 15:20 **Marine Hall**

FMC1: Manufacturing Technologies

Chair: M. Kimura, Nagaoka Univ. of Tech., Japan
Co-Chair: P. E. Malinowski, imec, Belgium

FMC1 - 1: 14:00 ***Invited*** **Visualization Analyses of Replication Molding Phenomena in Injection Molding**

H. Yokoi

Univ. of Tokyo, Japan

FMC1 - 2 14:20 **Development of Roll to Sheet Gravure Offset-Printed Touch Sensor Fabrication**

J. W.-C. Yu, S.-A. Kuo, C.-H. Chen

AU Optronics, Taiwan

FMC1 - 3 14:40 **Patterning of Multicolor OLEDs with Ultra-High Resolution by Photolithography**

P. E. Malinowski[*], T. Ke[*], A. Nakamura[**], S. Steudel[*], D. Janssen[**], Y. Kamochi[***], I. Koyama[***], Y. Iwai[***], P. Heremans[,****]*

[*]imec, Belgium
[**]FUJIFILM Elect. Materials (Europe), Belgium
[***]FUJIFILM, Japan
[****]Holst Ctr., the Netherlands

FMC1 - 4 15:00 **Ultrafast, All-Laser Precision Manufacturing of Display Cover Glass for Consumer Devices**

M. Mielke, D. Gaudiosi, M. Shirk, E. Juban, M. Greenberg, N. Matthew, T. Booth, S. Srinivas

Raydiance, USA

----- Break -----

15:45 - 16:45 **Marine Hall**

FMC2: Materials and Components

Chair: R. Yamaguchi, Akita Univ., Japan
Co-Chair: W. I. Milne, Univ. of Cambridge, UK

FMC2 - 1: 15:45 ***Invited*** **Graphene for Plastic Electronics**

W. I. Milne[,**], F. Torissi[*], T. Hasan[*], M. T. Cole[*], M. H. Kang[*], A. C. Ferrari[*]*

[*]Univ. of Cambridge, UK
[**]Tokyo Inst. of Tech., Japan

FMC2 - 2 16:05 **A New Type of Alignment Material for Double-Layered Retarders Composed of Polymerizable LC**

R. Takasago, A. Tamura, T. Miyahara, S.-I. Morishima, N. Yanagihara, Y. Takahashi, Y. Furuki, S. Yoshida, Y. Ito

FUJIFILM, Japan

FMC2 - 3 16:25 **Inorganic Wave Plates with High Performance in Visible Region Fabricated by Serial Bideposition**

*N. Koike, K. Sasaki, E. Takahashi, N. Hanashima, A. Takada, M. Suzuki**

Dexerials, Japan
**Kyoto Univ., Japan*

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 12:00 **Exhibition Hall B**

***Poster* FMCp1: Manufacturing Technologies**

FMCp1 - 1 **High Resolution Technology for FPD Manufacturing**

N. Yabu, K. Nagano, N. Izumi

CANON, Japan

FMCp1 - 2 **Realization on Short-Pitch with Wing/Body Patterning Technology**

Z. Cao, J. Xue, B. Zhang, X. He, S. J. Choi

BOE Tech. Group, China

FMCp1 - 3 **Liquid Optical Clear Adhesive Lamination Guideline for Large Size Panels**

B. Fu, L. Yan

Henkel, China

FMCp1 - 4 **First Ultra Thin Glass Temporary Bonding Technology Apply in LTPS-LCD**

C.-H. Liao, C.-H. Chan, S.-P. Chiao, T.-C. Fan, Y.-H. Lai, J.-K. Lu, N. Sugiura

AU Optronics, Taiwan

FMCp1 - 5 **Electrostatic Control for Flexible Substrate De-Bonding Process**

C.-C. Tsai, H.-P. Shih, C.-C. Wu, C.-W. Kung, K.-W. Lan

ITRI, Taiwan

FMCp1 - 6 **Current Status of Excimer Laser Annealing for High-Volume LTPS Manufacturing**

B. A. Turk, R. Paetzel

Coherent, USA

FMCp1 - 7 **Direct Morphology Observation of LC-Polymer Boundary Imaged by Atomic Force Microscope**

K. Ueda, T. Yamamoto, M. Kimura

Nagaoka Univ. of Tech., Japan

9:00 - 12:00 **Exhibition Hall B**

Poster FMCp2: Materials and Components

FMCp2 - 1 **Analysis of Black Matrix Electric Properties by Thermal Stress**

Y. Na, S. Min, M. Kwak, D. Kang, Y. Choi, S. Jeon

LG Display, Korea

FMCp2 - 2 **High Thermal Stability Glass Substrate for High Resolution Display**

M. Hayashi, T. Murata, Y. Kato, T. Murata, M. Ohji

Nippon Elec. Glass, Japan

FMCp2 - 3 **A Study of Spring Impact Hammer to Define the Specification of Impact Test**

B.-C. Huang, K.-C. Chang, C.-Y. Chiu, Y.-C. Liu

G-tech Optoelect., Taiwan

FMCp2 - 4 **Effect of N_2O Doping on the Properties of ZnO Thin Films on a-Al_2O_3 Using High-Energy H_2O Generated by a Catalytic Reaction**

Y. Ohashi, S. Kanouchi, N. Yamaguchi, Y. Tamayama, T. Kato, K. Yasui

Nagaoka Univ. of Tech., Japan

FMCp2 - 5 **Crystalline Structure and Dislocation Distribution of ZnO Thin Film Grown on A-Plane Sapphire Substrate Using High-Temperature H_2O Produced by a Pt-Catalyzed H_2 and O_2 Reaction**

T. Nakamura, Y. Ishiduka, N. Yamaguchi, Y. Tamayama, K. Yasui

Nagaoka Univ. of Tech., Japan

FMCp2 - 6 **Development of Novel Primer Material Suitable for Connecting Cyclolefin Polymer Film and ITO Thin Layer**

T. Yamate, K. Ono, S. Yamada, H. Suzuki, K. Kumazawa

Nippon Soda, Japan

FMCp2 - 7 **Development of the Li-Doped Potassium Sodium Niobate Piezoelectric Ceramics with High Electromechanical Coupling Coefficient and Applied to Single-Element Ultrasound Transducers**

C.-M. Weng, Y.-H. Zou, C.-C. Tsai[*], C.-S. Hong[**], S.-Y. Chu

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

FMCp2 - 8 **High Dielectric Constant Material of $(1-x)Na_{0.5}K_{0.5}NbO_3$ - $xSrTiO_3$**

H.-H. Su, C.-S. Lin[*], C.-S. Hong[**], C.-C. Tsai[***], S.-Y. Chu

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

FMCp2 - 9 **The Development of Multi-Layer Step-Down Lead-Free Piezoelectric Transformers with High Isolation and Its Applications on the AC-DC Inverters**

Z.-Y. Chen, C.-C. Tsai[*], C.-S. Hong[**], S.-Y. Chu, S.-K. Hung, C.-C. Chang-Chien

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

9:00 - 12:00 **Exhibition Hall B**

Poster FMCp3: Lighting Technologies
Special Topics of Interest on Lighting Technologies

FMCp3 - 1 **Construction of a Backlight Module by Connecting Unit Cells with an Optical Fiber**

T. Kojima, Y. Asakura, T. Ogawa, I. Fujieda

Ritsumeikan Univ., Japan

FMCp3 - 2 **Effect of LGP Outline on Edge-Lit LED TV Design**

H. He, Y.-Y. Qiu

Shenzhen China Star Optoelect. Tech., China

FMCp3 - 3 **Solution for Achieving an Optimized LED Spectrum for LCM**

C.-T. Kang, R. Chang, Y.-Y. Qiu, Z.-J. Su

Shenzhen China Star Optoelect. Tech., China

FMCp3 - 4 **Portable LED Illuminating Device for Personal Photodynamic Treatment and Cell Culturing**

C.-J. Ou, Z.-W. Lin, Y.-S. Lin, P.-Y. Lin, J.-Y. Chen, Y.-K. Tsai

Hsiuping Univ. of S&T, Taiwan

FMCp3 - 5 **A Glare Detection for the High-Brightness LED Display Boards Using a Digital Camera**

Y.-H. Siao, P.-J. Wu[*], B.-J. Pong[**], S.-W. Hsu[**], C.-H. Wen[***], C.-Y. Chen

Nat. Yunlin Univ. of S&T, Taiwan
[*]Nat. Chiao Tung Univ., Taiwan
[**]ITRI, Taiwan
[***]Nat. Taiwan Univ. of S&T, Taiwan

FMCp3 - 6 **The Design of Personal Privacy and Wide Viewing Functions LCM Model Design**

Y. W. Chang

AU Optronics, Taiwan

9:00 - 12:00 **Exhibition Hall B**

***Poster* FMCp4: Oxide TFT/Printed Electronics**
Special Topics of Interest on Oxide-Semiconductor TFT

FMCp4 - 1 **Effect of Cu Dopant on Structural and Optical Properties of Zinc Oxide Nanorods**

Z. Jin, T. Umakoshi, Y. Abe, M. Kawamura, K. H. Kim

Kitami Inst. of Tech., Japan

FMCp4 - 2 **Post-Annealing Effect of Zinc Oxide Nanorods Grown on Al-Doped Zinc Oxide Seed Layers**

T. Umakoshi, Y. Abe, M. Kawamura, K. H. Kim

Kitami Inst. of Tech., Japan

FMCp4 - 3 **Application of Microwave-Detected Photoconductivity Decay Technique to Process Monitoring in Back Channel Etching-Type TFT Fabrication**

H. Goto, M. Ochi, H. Tao, S. Morita, Y. Takanashi, A. Hino, K. Hayashi, T. Kugimiya

Kobe Steel, Japan

FMCp4 - 4 **Copper Nano Particle Ink for Reverse Offset Printing and the Application to Thin Film Transistors**

M. Koutake[,**]*

[*]JAPERA, Japan
[**]DIC, Japan

----- Lunch -----

17:00 - 18:00 **Snow Hall B**

FMC3: Optical Films

Chair: H.-M. P. Chen, Nat. Chiao Tung Univ., Taiwan
Co-Chair: T. Nonaka, AZ Elect. Materials Manufacturing Japan, Japan

FMC3 - 1: 17:00 ***Invited*** **Microstructure Film for Wide Viewing TN-LCD**
S. Katsuta, E. Yamamoto, Y. Asaoka, T. Kanno, H. Yui, T. Kamada, T. Maeda, Y. Tsuda, K. Kondo
Sharp, Japan

FMC3 - 2: 17:20 ***Invited*** **Meta-Surface Film for Heat-Cutting from the Sun Light**
M. Naya, T. Tani, S. Hakuta, H. Yasuda, N. Kiyoto
FUJIFILM, Japan

FMC3 - 3 17:40 **Square Light-Diffusing Film by Collimated UV Light and a Cross Shaped Light Diffuser**
B. Katagiri, K. Kusama, T. Orui, S. Shoshi
LINTEC, Japan

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:00 **Snow Hall B**

FMC4: Augmented Reality and Virtual Reality

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: H. Okumura, Toshiba, Japan
Co-Chair: M. Shinohara, Omron, Japan

FMC4 - 1: 9:00 ***Invited*** **Wide Field of View Optical Combiner for Augmented Reality Head-Up Displays**
H. Okumura, A. Hotta, T. Sasaki, K. Horiuchi, N. Okada
Toshiba, Japan

FMC4 - 2 9:20 **Panoramic 3D Floating Image Display Using Dual Concave Reflectors**
K. Li
Wavien, USA

FMC4 - 3 9:40 **Fabrication of Special Glass-Beads Retroreflector for Aerial Imaging by Retro-Reflection**

Y. Tomiyama[*], S. Suyama[*], H. Yamamoto[,**,***]*

[*]Univ. of Tokushima, Japan
[**]JST-CREST, Japan
[***]Utsunomiya Univ., Japan

----- Break -----

10:45 - 12:05 **Snow Hall B**

FMC5: Lighting Technologies
Special Topics of Interest on Lighting Technologies

Chair: F. P. Shevlin, Dyoptyca, Ireland
Co-Chair: K. Käläntär, Global Optical Solutions, Japan

FMC5 - 1 10:45 **Light Guide Plate Illumination with Blue Laser and Quantum Dot Emission**

F. Shevlin

DYOPTYKA, Ireland

FMC5 - 2 11:05 **Design and Perception of an Edge Lit HDR Display**

P. Cirkel, L. Penninck

TPVision, Belgium

FMC5 - 3 11:25 **Predicting Color Appearance under Non-Uniform Lighting Environments**

H.-C. Li[*], P.-L. Sun[*], S.-Y. Chang[*], R. Luo[,**]*

[*]Nat. Taiwan Univ. of S&T, Taiwan
[**]Univ. of Leeds, UK

FMC5 - 4 11:45 **The Design of Anti-Glare Lens Applied to Direct LED Panel Lighting**

J. W. Pan, Y. K. Hus, C. W. Chiang

Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

13:30 - 14:35 **Snow Hall A**

FLX6/FMC6: Flexible Materials and Devices

Chair: Y. Mishima, FUJIFILM, Japan
Co-Chair: T. Tomono, Toppan Printing, Japan

FLX6/ FMC6 - 1: 13:30 ***Invited*** **Flexible Substrates and Alternative Electrodes of ITO for OLED Lighting**

M. Koden, H. Kobayashi, T. Moriya, N. Kawamura, T. Furukawa, H. Nakada

Yamagata Univ., Japan

FLX6/ FMC6 - 2 13:55 **An Analysis Method of Shock Test for Flexible Displays by Using an Image Luminance Measurement Device**

J.-M. Hsu, S.-W. Hsu, B.-J. Wen, T.-Y. Chung
ITRI, Taiwan

FLX6/ FMC6 - 3 14:15 **Plastic Substrate Technology for Flexible LCD**

Z.-H. Chen, T.-H. Huang, J.-K. Lu, N. Sugiura
AU Optronics, Taiwan

Author Interviews and Demonstrations
16:45 – 17:45

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

RECEPTION

Wednesday, December 3, 2014
19:00 – 21:00
Room “Continental” (4F)
Hotel Okura Niigata
See page 12 for details

EXHIBITION

12:40 – 18:00 Wednesday, Dec. 3, 2014
10:00 – 18:00 Thursday, Dec. 4, 2014
10:00 – 14:00 Friday, Dec. 5, 2014

Exhibition Hall B
TOKI MESSE Niigata Convention Center

Free admission with your registration name tag

Workshop on EL Displays and Phosphors

Thursday, December 4

9:00 - 12:00 **Exhibition Hall B**

***Poster* PHp1: Phosphors**

PHp1 - 1 **Printing Artefacts in the Manufacture of AC Electroluminescence**

J. Silver, P. G. Harris

Brunel Univ., UK

PHp1 - 2 **PL and EL Characteristics in UV to Blue-Green Emitting Bi-Activated Y_2O_3-Based Oxide Phosphor Thin Films Prepared by Magnetron Sputtering**

T. Miyata, S. Abe

Kanazawa Inst. of Tech., Japan

PHp1 - 3 **Local Structural Effect on Emission Characteristics of Organic-Inorganic Hybrid Phosphor Made from Malic Acid and APTES**

A. Kato, K. Hasegawa, K. Komatsu, T. Kawase

Nagaoka Univ. of Tech., Japan

PHp1 - 4 **Synthesis of Y_2WO_6:Eu Nano-Rod Phosphor for Local Field Enhanced Inorganic Electroluminescent Devices**

A. Kato, S. Matsumoto, D. Imai

Nagaoka Univ. of Tech., Japan

PHp1 - 5 **Suppressed Sublimation of Organic Dye Nano-Particles Embedded in Sol-Gel Derived Silica Glass**

T. Yamaki, T. Kurabayashi, T. Fukuda, N. Kamata, Z. Honda

Saitama Univ., Japan

9:00 - 12:00 **Exhibition Hall B**

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

PHp2 - 1 **Study on Luminescence Property of $Ba_3(Sc_{1-X}Ho_x)_4O_9$ Phosphors**

K. Sugimoto, S. W. Kim, T. Ishigaki, K. Uematsu, K. Toda, M. Sato

Niigata Univ., Japan

PHp2 - 2 **The Effect of Si_3N_4 Sources on the Synthesis and the Luminescence Characteristic of $Sr_{2-X}Si_3O_2N_4$: xEu^{2+}**

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

Nat. Cheng Kung Univ., Taiwan

PHp2 - 3 **A Novel Reddish Orange-Emitting $BaLa_2Si_2S_8:Eu^{2+}$ Thiosilicate Phosphor for White Light-Emitting Diodes**

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

Nat. Chiao Tung Univ., Taiwan

----- Lunch -----

15:15 - 16:25 **Room 302 B**

PH1: Phosphors for General

Chair: J. Silver, Brunel Univ., UK
Co-Chair: T. Miyata, Kanazawa Inst. of Tech., Japan

PH1 - 1: 15:15 ***Invited*** **A New and Potential Luminescence Material for Displays**

W. Chen, L. Ma

Univ. of Texas at Arlington, USA

PH1 - 2: 15:40 ***Invited*** **Advanced Nanophosphors Synthesized by Microreaction Method and Their Application to Wavelength Conversion Layer**

H. Okura, K. Ohmi[*]

Merck, Japan
[*]Tottori Univ., Japan

PH1 - 3 16:05 **Synthesis of $LaPO_4:Tb^{3+},Ce^{3+}$ Phosphors by Solid Hydrate Thermal Processing**

S. W. Kim, T. Kaneko, K. Toda, K. Uematsu, M. Sato, J. Koide[*], M. Toda[*], Y. Kudo[*]

Niigata Univ., Japan
[*]N-Luminescence, Japan

----- Break -----

17:00 - 18:05 **Room 302 B**

PH2: Phosphor Applications

Chair: R.-J. Xie, NIMS, Japan
Co-Chair: K. Wani, TAZMO, Japan

PH2 - 1: 17:00 ***Invited*** **Development of a UV Light Source Using Pr:LuAG Thin Film Target Pumped by Electron Beam**

N. Ichikawa, K. Ikeda, Y. Honda, H. Taketomi, K. Kawai, T. Suzuki

Hamamatsu Photonics, Japan

PH2 - 2 17:25 **Fabrication of Luminescent Thin Film for Nanometric Light Spot of High Spatial Resolution Optical Microscopy**

T. Furukawa[*], S. Kanamori[*], M. Fukuta[*], Y. Nawa[*], H. Kominami[*], Y. Nakanishi[*], A. Sugita[*], W. Inami[,**], Y. Kawata[*,**]*

[*]Shizuoka Univ., Japan
[**]JST, Japan

PH2 - 3 17:45 **Growth, Structure, and Cathodoluminescence Property of ZnO Nanorods Prepared with Low Temperature Reducing Annealing**

C. Li, X. Li, S. Hou

Kochi Univ. of Tech., Japan

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:25 **Room 302A**

PH3: Phosphors for Lighting Application
Special Topics of Interest on Lighting Technologies

Chair: W. Chen, Univ. of Texas at Arlington, USA
Co-Chair: K. Ohmi, Tottori Univ., Japan

PH3 - 1: 9:00 ***Invited*** **Quantum Rods Optical Film for Backlight**

E. Shaviv, D. Glozman, Y. Bonfil, U. Banin, S. Amir

Qlight Nanotech, Israel

PH3 - 2 9:25 **Thermal Degradation of Green-Emitting $SrSi_2O_2N_2:Eu^{2+}$**

C. Wang, R.-J. Xie[*], T. Takeda[*], T. Suehiro[*], N. Hirosaki[*]

Univ. of S&T of China, China
[*]NIMS, Japan

PH3 - 3
9:45 **Wireless Power Transmission Method of a Powder EL Sheet Device**

K. Wani, T. Kanda, E. Hashimoto

TAZMO, Japan

PH3 - 4
10:05 **Studies of Electroluminescence from Individual Phosphor Particles**

J. Silver, P. G. Harris

Brunel Univ., UK

Author Interviews and Demonstrations
16:45 – 17:45

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

Evening Get-Together with Wine

Tuesday, December 2, 2014
18:00 – 20:00
Observation Deck (31F),
Hotel Nikko Niigata
(Sponsored by Merck Ltd., Japan)
See page 12 for details

IMID 2014

August 26 – 29, 2014

EXCO

Daegu, Korea

Workshop on Field Emission Displays, CRTs and Plasma Displays

Friday, December 5

9:00 - 9:05 **Room 302 B**

Opening

Opening Remarks
9:00

H. Mimura, Shizuoka Univ., Japan

9:05 - 10:35 **Room 302 B**

FED1: Novel Devices and Applications

Chair: Y. Gotoh, Kyoto Univ., Japan
Co-Chair: F. Wakaya, Osaka Univ., Japan

FED1 - 1: 9:05 ***Invited*** **High Resolution Optical Imaging for Living Cells with Electron Beam Excitation**

Y. Kawata[,**], Y. Nawa[*], W. Inami[*,**]*

[*]Shizuoka Univ., Japan
[**]JST-CREST, Japan

FED1 - 2 9:35 **Electrostatic-Focusing Spindt-Type FEA with Improved Electron-Beam Extraction Efficiency for FEA-HARP Image Sensor**

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

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

FED1 - 3 9:55 **A High-Sensitivity Photodetector Made of Amorphous Selenium and Nitrogen-Doped Diamond Cold Cathode**

T. Masuzawa, T. Yamada[*], Y. Neo, H. Mimura, D. H. C. Chua[**], K. Okano[***]

Shizuoka Univ., Japan
[*]AIST, Japan
[**]Nat. Univ. of Singapore, Singapore
[***]Int. Christian Univ., Japan

FED1 - 4
10:15 **Photoassisted Field Emission from P-Type Silicon FEAs**

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

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

----- Break -----

10:45 - 12:05 **Room 302 B**

FED2: Fabrication Processes and New Materials

Chair: H. Mimura, Shizuoka Univ., Japan
Co-Chair: H. Shimawaki, Hachinohe Inst. of Tech., Japan

FED2 - 1
10:45 **Fabrication and Emission Characteristics of Ni and Mo Spindt-Type FEAs with Volcano-Structured Focusing Electrode**

M. Nagao

AIST, Japan

FED2 - 2
11:05 **Computer Simulation of Electron Beam Trajectories in Double-Gated Spindt-Type FEAs**

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

Kyoto Univ., Japan
[*]AIST, Japan

FED2 - 3
11:25 **Enhanced Field Emission of CuO Nanowire Arrays by Coating of CNT Network Film**

H. Hu, D. Zhang, J. Lin, F. Li, T. Guo

Fuzhou Univ., China

FED2 - 4
11:45 **Electron Emission from MIM Cathodes with an Ag Nanowire Top Electrode**

J. Lin, H. Hu, L. Hu, F. Li, T. Guo

Fuzhou Univ., China

----- Lunch -----

13:30 - 14:50 **Room 302 B**

FED3: FE Mechanisms and PDP Protective Layers

Chair: M. Nagao, AIST, Japan
Co-Chair: H. Kajiyama, Tokushima Bunri Univ., Japan

FED3 - 1
13:30 **Observation of Fringelike Emission Pattern in Magnetic Field**

Y. Yamada, S. Abo, K. Murakami[*], F. Wakaya, M. Abe, M. Takai

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

FED3 - 2
13:50 **Work Function Measurements of Tungsten Surface Modified by Praseodymium Oxide by Using Field Emission Microscopy and Retarding Method**

T. Kawakubo, K. Kanbara, T. Kitani, H. Nakane[*]

Nat. Inst. of Tech. Kagawa, Japan
[*]Muroran Inst. of Tech., Japan

FED3 - 3
14:10 **High-Intensity Deep-UV Radiation and Exo-Electron Emission of MgO Powders for AC PDPs**

M. Sakai[,**], H. Asano[*,**], Y. Fukui[*], T. Tsujita[*,**], M. Nishitani[*,**], H. Kimiya[*], R. Murai[*], M. Kitagawa[**]*

[*]Panasonic, Japan
[**]Osaka Univ., Japan

FED3 - 4
14:30 **Electron Storage by Photochromic Transition of Oxide Nanoparticle**

H. Kajiyama, T. Matsuura, M. Maekawa[*], K. Uchino[*], K. Takata[**], S. Inoue[***]

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

----- Break -----

15:15 - 16:35 **Room 302 B**

FED4: Summing Up of PDP History

Chair: L. Weber, Consult., USA
Co-Chair: T. Shiga, Univ. of Electro-Commun., Japan

FED4 - 1:
15:15 ***Invited*** **Summing Up of the PDP History and a Peek at Plasma Technologies Beyond Displays**

S. Mikoshiba

Univ. of Electro-Commun., Japan

FED4 - 2
15:55
A Flexible Luminous Array Film as a Radiation Area Selectable Hg-Free Ultra-Narrow Band UVB Light Source

*B. Guo, K. Awamoto, H. Hirakawa, T. Nishimoto**

Plexie, Japan

**Yumex, Japan*

FED4 - 3
16:15
Photosynthesis Promotion by Pulsed Light from an AC-PDP Based Fluorescent Film

H. Kajiyama, T. Ohata, I. Kanmai, S. Nagahara, T. Kono, S. Funai, T. Matsuura

Tokushima Bunri Univ., Japan

Author Interviews and Demonstrations
16:45 – 17:45

Supporting Organizations:
JSPS 158th Committee on Vacuum Nanoelectronics
Plasma Display Technical Meeting

RECEPTION

Wednesday, December 3, 2014
19:00 – 21:00
Room “Continental” (4F)
Hotel Okura Niigata
See page 12 for details

Late-News Papers

Due September 25, 2014
Submit a two-page camera-ready manuscript
via IDW website:
http://www.idw.or.jp/latenews.html

Workshop on OLED Displays and Related Technologies

Wednesday, December 3

14:00 - 15:20 **Snow Hall B**

OLED1: Advanced OLED Technologies (1)

Chair: T. Wakimoto, Merck, Japan
Co-Chair: T. Uchida, Tokyo Polytechnic Univ., Japan

OLED1 - 1 14:00 **Flexibility and Reliability Improvement for Foldable OLED**

S.-T. Yeh, G. Chen, C.-H. Tsai, Y.-H. Peng, J.-C. Ho, C.-C. Lee

ITRI, Taiwan

OLED1 - 2 14:20 **An Ultrathin AMOLED Integrated with On-Cell Touch Sensor for Flexible Displays**

K.-T. Chen, S.-W. Chen, S.-A. Chen, P.-H. Wang, C.-C. Chang, S.-H. Lee, C.-W. Jung, M.-H. Yeh, K.-J. Chen, J.-Y. Yan, J.-C. Ho, C.-C. Lee

ITRI, Taiwan

OLED1 - 3 14:40 **Black Screen for High Contrast Smart Window AMOLED Display**

D. C. Choe, G. W. Kim, R. Lampande, J. H. Kwon

Kyung Hee Univ., Korea

OLED1 - 4 15:00 **High-Transparent 4.65-in. QHD AMOLED Display with 21% Transmittance**

C.-T. Lee, Y.-Y. Huang, C.-C. Tsai, C.-C. Kuo, C.-H. Chiu, J.-H. Huang, C.-C. Tsai, Y.-H. Cheng, C.-L. Chen, C.-T. Liang, W.-C. Yen, J.-S. Huang, Y.-W. Chiu, Y.-W. Liu

Chunghwa Picture Tubes, Taiwan

----- Break -----

15:45 - 16:45 **Snow Hall B**

OLED2: Advanced OLED Technologies (2)

Chair: Y. Kijima, Sony, Japan
Co-Chair: S. Naka, Univ. of Toyama, Japan

OLED2 - 1 15:45 **OLED on Silicon for Sensor Applications**

M. Thomschke, M. Jahnel, B. Beyer, K. Fehse, U. Vogel

Fraunhofer COMEDD, Germany

OLED2 - 2 16:05 **Viewing Angle Spectral Analysis of OLED Display Light Emission Properties**

P. M. Boher, T. Leroux, T. Bignon, V. Collomb-Patton

ELDIM, France

OLED2 - 3 16:25 **Natural Stereoscopic Effect Achieved by High-Resolution OLED Display**

*Y. Yanagisawa, H. Ikeda, M. Jikumaru, D. Kubota, Y. Hirakata, S. Yamazaki, M. Hirose[*], M. Kasuga[**,***]*

Semiconductor Energy Lab., Japan
[*]Univ. of Tokyo, Japan
[**]Sakushin Gakuin Univ., Japan
[***]Utsunomiya Univ., Japan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 10:10 **Snow Hall B**

OLED3: OLED Process Technologies
Special Topics of Interest on Printed Electronics

Chair: T. Shimizu, NHK, Japan
Co-Chair: T. Komatsu, Panasonic, Japan

OLED3 - 1: 9:00 ***Invited*** **OLED Device Fabrication by Ink-Jet Printing Technology**

T. Sonoyama, M. Uchida, T. Sago, S. Watanabe, K. Ishida, M. Ito, M. Ishida, M. Yamada, Y. Okawa, S. Tanabe, H. Kiguchi

Seiko Epson, Japan

OLED3 - 2: 9:25 ***Invited*** **Important Technologies of Ink Jet System for OLED Display Fabrication**

T. Hayashi, K. Oshima, S. Takei[*], A. Shimamura, Y. Konta, S. Tanabe[*]

Tokyo Electron, Japan
[*]Seiko Epson, Japan

OLED3 - 3 9:50 **UV-Activated Transparent Desiccant for Practical OLED Encapsulation Process**

H. Katsui, T. Miyasako, T. Arai, M. Takahashi, N. Onimaru, N. Takamatsu, T. Yamamura, K. Konno, K. Kuriyama

JSR, Japan

----- Break -----

10:45 - 11:55 **Snow Hall B**

OLED4: OLED Materials (1)
Special Topics of Interest on Printed Electronics

Chair: K. Nakayama, Yamagata Univ., Japan
Co-Chair: K. Monzen, Nissan Chem. Inds., Japan

OLED4 - 1: 10:45 ***Invited*** **Blue Fluorescent OLEDs for Printed Display Applications**

E. Boehm, C. Pflumm, H. Heil, S. Meyer, L.-I. Rodriguez, B. Burkhart, F. Eckes, K. Stegmaier, H. Buchholz

Merck KGaA, Germany

OLED4 - 2: 11:10 ***Invited*** **Development and Manufacture of Solution-Processed White OLED Lighting Panel**

T. Ogata

Mitsubishi Chem. Group S&T Res. Ctr., Japan

OLED4 - 3 11:35 The Soluble Hole Injection Materials and the Inks Applicable to OLED Devices

N. Otani, H. Koga, S. Moriyama, T. Endo, N. Nakaie, K. Monzen

Nissan Chem. Inds., Japan

Author Interviews and Demonstrations
18:30 – 19:30

13:30 - 16:30 **Exhibition Hall B**

Poster OLEDp1: OLED Poster
Special Topics of Interest on Lighting Technologies

OLEDp1 - 1 Flexible Hybrid White Light Emitting Diodes Based on Small Molecules and Quantum Dots

W. Wu, F. Li, H. Hu, J. Lin, T. Guo

Fuzhou Univ., China

OLEDp1 - 2 Novel Phosphorescent Host Material for Tunable Hybrid White OLED Devices

H.-L. Huang, B. Balaganesan, H.-M. Kuo, B.-W. Xie, T. -C. Chao, M. -R. Tseng

eRay Optoelect. Tech., Taiwan

13:30 - 16:30 **Exhibition Hall B**

***Poster* OLEDp2: OLED Poster**
Special Topics of Interest on Printed Electronics

OLEDp2 - 1 **High-Mobility Solution-Processed Organic Field-Effect Transistors with Channel Length of 5 μm**

R. Nakamichi, T. Nagase, T. Kobayashi, Y. Sadamitsu[*], H. Naito

Osaka Pref. Univ., Japan
[*]Nippon Kayaku, Japan

13:30 - 16:30 **Exhibition Hall B**

***Poster* OLEDp3: OLED Poster**

OLEDp3 - 1 **Polyfluorenes Containing Partially Hydrolyzed Phosphonate Pendant Groups as Electron-Injection Layer for PLEDs**

Y. Chen, C.-Y. Chou, H.-A. Lu, C.-P. Chen, Y.-J. Lin, C.-S. Wu

Nat. Cheng Kung Univ., Taiwan

OLEDp3 - 2 **Inverted Transparent Organic Light-Emitting Diodes (i-TOLEDs) Comprising Metal Oxide Compounds as Electron-Injection Layer without Alkali Metal**

R. Tejima, M. Ichikawa, Y. Hoshi, T. Uchida

Tokyo Polytechnic Univ., Japan

OLEDp3 - 3 **The Study of High Resolution Micro-Contact Printing Technology on 4-in. 441 ppi FHD OLED Display**

J.-A. Cheng, P.-C. Lin, Q. Li[*], Z. Zhu[*], D. An[*], L.-N. Chien, C.-T. Lin, I.-W. Wu[**], I.-M. Lu, S. Fan[*]

Yeh Hsin Tech. Consulting, Taiwan
[*]Tsinghua Univ., China
[**]Century Tech., China

OLEDp3 - 4 **Enhancement of Hole-Injection and Power Efficiency of Organic Light Emitting Devices Using an Ultra-Thin MnO-Doped ZnO Buffer Layer**

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

Nat. Cheng Kung Univ., Taiwan
[*]Nat. Chiayi Univ., Taiwan

OLEDp3 - 5 **Characterization of Metals/Pentacene Interfaces by Hard X-Ray Photoelectron Spectroscopy**

I. Hirosawa, T. Watanabe, H. Oji, K. Tada[*], N. Yoshimoto[*]

JASRI, Japan
[*]Iwate Univ., Japan

OLEDp3 - 6 **Surface-Light-Emitting Transistors Using a P-Type Metal-Base Organic Transistors**

N. Kogasaka, H. Muto, K. Nakayama

Yamagata Univ., Japan

OLEDp3 - 7 **A Characterization and Evaluation Method for a Gas Barrier Film and Polarizer to Predict Minimum Bending Diameter Allowed in a Flexible OLED Device**

A. T. Huang, S.-T. Ho, S.-H. Hung, M.-T. Lee

AU Optronics, Taiwan

OLEDp3 - 8 **Analysis of Exciton Quenching Dynamics of $Ir(ppy)_3$ with Hole Measured by Time-Resolved Luminescence Spectroscopy**

S. Oyama, H. Sakai, H. Murata

JAIST, Japan

OLEDp3 - 9 **Detection of Charged Species in Operating Organic Devices Using Multiple Reflection Absorption Spectra**

Y. Akagi, H. Sakai, H. Murata

JAIST, Japan

OLEDp3 - 10 **In Situ Characterization of the Charge Transport and Crystal Structural Properties in Organic Thin Film Transistor**

T. Watanabe, T. Koganezawa, M. Kikuchi[*]*, K. Nishida*[*]*, N. Yoshimoto*[*]*, I. Hirosawa*

JASRI, Japan
[*]*Iwate Univ., Japan*

OLEDp3 - 11 **Mechanistic Analysis for Preferable Performances at High Temperature of the OLED Device with New Electron Transport Material**

K. Nomura, T. Tanaka

TOSOH, Japan

OLEDp3 - 12 **High Efficiency Blue Phosphorescent Organic Light-Emitting Diodes with Various Host Materials**

S. H. Kim, Y. J. Kim, Y.H.Son, J.M.Lee, B.Y.Kang, C.H.Noh, S.H.Kim[*]*, J.H.Kwon*

Kyung Hee Univ., Korea
[*]*Samsung Elect., Korea*

OLEDp3 - 13 **Improvement on Equivalent Circuit Model for OLED with Its Luminance Decay Characteristics**

J. Wu, Z. Zou, Y. Tang, Y. Zheng

Southeast Univ., China

OLEDp3 - 14 Efficient Ionization Method of Atomized Droplet for Fabricating Multilayer Organic Light-Emitting Diode

A. Sato, T. Fukuda, N. Kamata, Z. Honda

Saitama Univ., Japan

OLEDp3 - 15 A Fast Evaluation of Barrier Tapes for In-Plane Water Vapor Permeation in Conventional Ca Film Tests

S.-T. Ho, S.-H. Hung, W.-L. Hung, C.-L. Wang, M.-T. Lee

AU Optronics, Taiwan

OLEDp3 - 16 Blue Phosphorescence Light-Emitting Diode with a New CbzOXD Host

H.-J. Chen, T.-L. Chiu, Y.-H. Hsieh, M.-K. Leung*, J.-H. Lee**

Yuan Ze Univ., Taiwan
**Nat. Taiwan Univ., Taiwan*

OLEDp3 - 17 High Efficiency Blue Phosphorescence Light-Emitting Diode with Novel CbzTAZ Host

H.-J. Chen, T.-L. Chiu, P.-S. Wang, J.-H. Lee*, Y.-H. Hsieh*, M.-K. Leung**

Yuan Ze Univ., Taiwan
**Nat. Taiwan Univ., Taiwan*

OLEDp3 - 18 Enhancement of Polarization Ratio on Polarized Organic Light Emitting Diodes Using Anisotropic Micro Lens Arrays

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

Hanyang Univ., Korea

OLEDp3 - 19 Optical Modeling of V-Shaped Organic Solar Cells in Oblique Incidence of Sunlight

J. Yoon, K. Kang, J. Kim

Kyung Hee Univ., Korea

OLEDp3 - 20 Solution Processed N-P Junction for High Performance Organic Light Emitting Diode

J. Kim, H.-M. Kim, J. Jang

Kyung Hee Univ., Korea

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:25 **Snow Hall A**

OLED5: OLED Materials (2)

Chair: S. Aratani, Hitachi, Japan
Co-Chair: T. Ikuta, JNC Petrochem., Japan

OLED5 - 1: 9:00 ***Invited*** **Latest Status of Soluble-OLED Material Development**

T. Yamada, Y. Tsubata, D. Fukushima, K. Ohuchi, N. Akino

Sumitomo Chem., Japan

OLED5 - 2 9:25 **Electrical Properties of Solution-Processed Hole Injection Layer Analyzed by Impedance Spectroscopy**

T. Endo, Y. Horiuchi, N. Otani, K. Monzen

Nissan Chem. Inds., Japan

OLED5 - 3 9:45 **Design to Electron Injection Complex Using Molecular Energy Calculation for High Performance OLED**

J. H. Kong, G. H. Kim, M. J. Park, H. W. Bae, J. H. Kwon

Kyung Hee Univ., Korea

OLED5 - 4 10:05 **Iridium-Free OLED Solutions for the Whole Color Spectrum**

M. Mydlak, D. Volz, D. Zink, T. Baumann, H. Flügge, C. Fléchon, J. Navarro

CYNORA, Germany

Author Interviews and Demonstrations
16:45 – 17:45

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 4

9:00 - 12:00 **Exhibition Hall B**

***Poster* 3Dp1: 3D/Hyper-Realistic Displays**

3Dp1 - 1 **Design of Pixel Structure for Color Electronic Holography using One-Dimensional Spatial Light Modulator**

A. Ueno, K. Nitta, O. Matoba

Kobe Univ., Japan

3Dp1 - 2 **Computer-Generated Hologram using Range Sensors and Digital Cameras at Arbitrary Locations**

K. Tai, Y. Sakamoto

Hokkaido Univ., Japan

3Dp1 - 3 **Automatic Geometric Calibration in Full-Parallax 3D Display using Holographic Screen**

R. Higashida, M. Yamaguchi

Tokyo Inst. of Tech., Japan

3Dp1 - 4 **Volumetric 3D Display using Rotating Screens**

S. Suzuki, C. Fujikawa, M. Omodani

Tokai Univ., Japan

3Dp1 - 5 **Floating Depth-Fused 3D Image using Multi-Focal Lens 3D System for Image Data Reduction**

R. Tanimoto[*], T. Kurokawa[*], H. Yamamoto[,**], S. Suyama[*]*

[*]Univ. of Tokushima, Japan
[**]Utsunomiya Univ., Japan

3Dp1 - 6 **Wide Viewing Zone by Dynamic Head Movement in Edge-Based DFD Display**

T. Soumiya, H. Kuribayashi[*], H. Yamamoto[**], S. Suyama

Univ. of Tokushima, Japan
[*]Nikon, Japan
[**]Utsunomiya Univ., Japan

3Dp1 - 7 **Crossed-Mirror Array Converges Sound Wave in 3D Space**

R. Kujime, K. Miyamoto, S. Suyama, H. Yamamoto[*]

Univ. of Tokushima, Japan
[*]Utsunomiya Univ., Japan

3Dp1 - 8 **Perceived Depth Degradation by Delay Time and Discontinuous Image Flipping in Monocular Motion Parallax Display**

S. Yamada[*], I. Ishii[**], H. Yamamoto[,***], S. Suyama[*]*

[*]Univ. of Tokushima, Japan
[**]Hiroshima Univ., Japan
[***]Utsunomiya Univ., Japan

3Dp1 - 9 **Elimination and Mechanism Study of Binocular Luminance Difference in a 240 Hz Shutter-Type 3D LCDs**

Y. Tian, X. Zhang, J. Hsu, C. Chen, C. Dong, X. Lian

Shenzhen China Star Optoelect. Tech., China

3Dp1 - 10 **Analysis and Improvement of Color Shift on Angles for 6-in. Stereoscopic Displays with Barriers**

H. Wu, H.-J. Yu, D. Xue, Z.-W. Cui, X-Q. Zhao, Z. Hong, Y.-Y. Yin, L. Xin

Beijing BOE Optoelect. Tech., China

3Dp1 - 11 **Crosstalk Suppression Based on Gray Couples Measurement**

J. Wang, X. Li, Y. Zhang, Z. Xia

Southeast Univ., China

3Dp1 - 12 **Study of Imaging Performance Affected by Color Pixel Arrangements and Lenticular Lenses Configuration for Autostereoscopy**

Y.-W. Chen, Z.-H. Jhong, C.-R. Sheu

Nat. Cheng Kung Univ., Taiwan

3Dp1 - 13 **KANSEI Multimedia Display System That Can Control Smell Discharge Direction and the Psychological Effects**

M. Tanaka, R. Shu, R. Shinohara, K. Tomono, A. Tomono

Tokai Univ., Japan

----- Lunch -----

13:30 - 15:00 **Room 302 A**

3D1: Holography

Chair: H. Yamamoto, Utsunomiya Univ., Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D1 - 1: 13:30 ***Invited*** **Real-Time Pupil Tracking for Holographic Display**

H.-G. Choo, K. A. Moon, J. Kim

ETRI, Korea

3D1 - 2: 13:55 ***Invited*** **Color Holographic Display Based on Shifted and Scaled Fractional Fourier Transform**

J. Xia, C. Chang, Y. Jiang, W. Lei

Southeast Univ., China

3D1 - 3 14:20 **3D Hologram Reconstruction in the Front of a Transmission Diffuser Screen**

J.-F. Chang, W.-C. Su

Nat. Changhua Univ. of Education, Taiwan

3D1 - 4 14:40 **DMD as a Display Device for Holographic Displays**

J.-Y. Son, B.-R. Lee[*], M.-C. Park[**], O. Chernyshov

Konyang Univ., Korea
[*]ETRI, Korea
[**]KIST, Korea

----- Break -----

15:15 - 16:30 **Room 301**

3D2: Interactive 3D Display Technology

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: M. Tsuchida, NTT, Japan
Co-Chair: K. Yamamoto, NICT, Japan

3D2 - 1: 15:15 ***Invited*** **Interactive Display Technologies using High-Speed Image Processing**

M. Ishikawa

Univ. of Tokyo, Japan

3D2 - 2: 16:00 ***Invited*** **Floating Digital Signage Based on Aerial Imaging Techniques**

H. Yamamoto[,**,***], S. Suyama[***]*

[*]Utsunomiya Univ., Japan
[**]JST-CREST, Japan
[***]Univ. of Tokushima, Japan

----- Break -----

17:00 - 18:40 **Room 301**

3D3: Omnidirectional Hyper-Realistic System

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: K. Yamamoto, NICT, Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D3 - 1: 17:00 ***Invited*** **Characteristic of the Ultra-Realistic Dome Images Estimated from Viewing Behavior**

M. Okyudo, C. Yoshizumi

Wakayama Univ., Japan

3D3 - 2: 17:25 ***Invited*** **Development of Spherical Image Camera RICOH THETA**

M. Shohara

Ricoh, Japan

3D3 - 3: 17:50 ***Invited*** **Omnidirectional Video Streaming System with HMD**

D. Ochi

NTT, Japan

3D3 - 4: 18:15 ***Invited*** **Holographic HMD with Wide Visual Field**

Y. Sakamoto

Hokkaido Univ., Japan

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:20 **Room 301**

3D4: 3D/Hyper-Realistic Displays (1)

Chair: H.-G. Choo, ETRI, Korea
Co-Chair: K. Yamamoto, NICT, Japan

3D4 - 1 9:00 **Realization of Homogeneous Brightness for Autostereoscopic Displays with Directional Backlights Composed of Convex Lens Arrays**

S. Ishizuka, T. Mukai, H. Kakeya

Univ. of Tsukuba, Japan

3D4 - 2 9:20 **Floating Touch Display Based on a Heterogeneous Imaging System**

Y. Maeda, D. Miyazaki, S. Maekawa[*]

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

3D4 - 3 9:40 **A 2D-3D Display with a 120 Hz Hybrid Spatial-Temporal Color LCD**

Y. Weng, Y. Zhang, X. Li

Southeast Univ., China

3D4 - 4 10:00 **True Color Optical Simulation of Integral Imaging 3D Display**

J. Chen, B. Fang, D. Fan, Q. Liao, Q. Wei, C. Yang, C. Lee, C. Lo, A. Lien[*]

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

----- Break -----

10:45 - 11:45 **Room 301**

3D5: 3D/Hyper-Realistic Displays (2)

Chair: J.-Y. Son, Konyang Univ., Korea
Co-Chair: M. Tsuchida, NTT, Japan

3D5 - 1
10:45
3D Image Qualities for the 4K2K TVs
*J.-Y. Huang, H.-S. Chen, P.-L. Sun, R. Luo**
Nat. Taiwan Univ. of S&T, Taiwan
**Univ. of Leeds, UK*

3D5 - 2
11:05
Examination of Night Driving Support System by the Video Infrared Stereo Night Vision and 3D Television
S. Suidu, T. Endo, M. Yamamoto
Niigata Univ., Japan

3D5 - 3
11:25
4-D Floating Image Display using Dual Off-Axis Parabolic Reflectors
K. Li
Wavien, USA

----- Lunch -----

13:30 - 14:55 **Room 301**

3D6: Optical Devices for 3D System

Chair: S. Yano, Shimane Univ., Japan
Co-Chair: M. Tsuchida, NTT, Japan

3D6 - 1:
13:30
Invited **Expanding Depth Directional Stereoscopic Viewing Zone by Continuous Varying Optical Power Lens with Removing Structural Crosstalk in Auto-Stereoscopic 3D**
K.-H. Lee
Korea Photonics Tech. Inst., Korea

3D6 - 2
13:55
A Novel Autostereoscopic Display Designed by Use of Wave Optics Simulation
A. Yuuki, T. Fujino, T. Satake, Y. Niwano, S. Nagano
Mitsubishi Elec., Japan

3D6 - 3
14:15
Analytical Solutions (Moiré Solver) of the Parameters of 3D Auto-Stereoscopic Multi-View Display.
F. Mukhtarov, S. D. Hwang
Samsung Elect., Korea

3D6 - 4
14:35

The Design of a Stereo Microscopic Eyepiece by Using a Biprism

S.-W. Yang, T.-H. Lin[*], C.-Y. Chen[*], K.-L. Huang[**], P.-J. Wu[***]

Nat. Central Univ., Taiwan
[*]Nat. Yunlin Univ. of S&T., Taiwan
[**]Ming Dao Univ., Taiwan
[***]Nat. Chiao Tung Univ., Taiwan

----- Break -----

15:15 - 16:20 **Room 301**

3D7/VHF7: Visual Perception for 3D System

Chair: K.-H. Lee, Korea Photonics Tech. Inst., Korea
Co-Chair: Y. Hisatake, Japan Display, Japan

3D7/ VHF7 - 1: 15:15

Invited **Towards the ISO Guideline for Image Safety in Stereoscopic Viewing**

T. Bando

AIST, Japan

3D7/ VHF7 - 2 15:40

The Impact of Screen Size on 3D Flicker-Free Luminance

P.-L. Sun[*], Y.-P. Hsieh[*], H.-S. Chen[*], M. R. Luo[,**]*

[*]Nat. Taiwan Univ. of S&T, Taiwan
[**]Univ. of Leeds, UK

3D7/ VHF7 - 3 16:00

Measurement of Visual Fatigue Induced by Stereoscopic Display Using an Oddball Based Event-Related Potential Experiment

P. Ye, H. Liang, J. Wang, F. Chen, S. Yang, J. Chen, X. Wu, D. Gao

Nat. Sun Yat-Sen Univ., China

Author Interviews and Demonstrations
16:45 – 17:45

Supporting Organizations:
Technical Group on Three-Dimensional Image Technology, ITE
Holographic Display Artists and Engineers Club, The Japan Society of Applied Physics

Workshop on Applied Vision and Human Factors

Thursday, December 4

9:00 - 10:10 **Room 302 A**

VHF1: Optical Measurements

Chair: J. Bergquist, Nokia Techs., Japan
Co-Chair: Y. Hisatake, Japan Display, Japan

VHF1 - 1: 9:00 ***Invited*** **General FPD Mura Index under the IEC Measurement Standard**

S. Hasegawa, S. Tomioka[*], K. Nagamine[*]

Sony Visual Prods., Japan
[*]Sony, Japan

VHF1 - 2 9:30 **Novel Evaluation Method of Sparkle for LCDs with Different Anti-Glare Films**

T.-W. Hsu, Y.-H. Chiang, C.-W. Chen

AU Optronics, Taiwan

VHF1 - 3 9:50 **Spectral Imaging Analysis of OLED Display Light Emission Properties**

P. M. Boher, T. Leroux, T. Bignon, V. Collomb-Patton

ELDIM, France

----- Break -----

10:45 - 11:55 **Room 302 A**

VHF2: Color and OLEDs

Chair: S. Hasegawa, Sony Visual Prods., Japan
Co-Chair: K. Masaoka, NHK, Japan

VHF2 - 1: 10:45 ***Invited*** **Visual Effects of Curved AMOLEDs**

J. S. Kimmel

Nokia Techs., Finland

VHF2 - 2 11:15 **A Monitor-Based System for Digital Quantification of Deuteranomalous Vision**

Y. Tsai, H. Chen, M. R. Luo[*]

Nat. Taiwan Univ. of S&T, Taiwan
[*]Univ. of Leeds, UK

VHF2 - 3 11:35 **Estimation of the Helmholtz-Kohlrausch Effect in Natural Images Using Gaze Tracking Data**

T. Shizume, G. Ohashi, H. Takamatsu[*], Y. Shimodaira

Shizuoka Univ., Japan
[*]NEC Display Solutions, Japan

----- Lunch -----

13:30 - 16:30 **Exhibition Hall B**

Poster VHFp1: Applied Vision and Human Factors

VHFp1 - 1 **Evaluating and Simulating on Luminance Discrepancy between Centre and Fringe of a Liquid Crystal Display**

J. Wang, C. Wu, H. Liu, S. Lo

Shenzhen China Star Optoelect. Tech., China

VHFp1 - 2 **Object Images Quality Improvement for Transparent Display**

Y.-H. Tsai[,**], W.-D. Jeng[*], K.-L. Lo[**], T.-W. Huang[*], O.-Y. Mang[*]*

[*]Nat. Chiao Tung Univ., Taiwan
[**]ITRI, Taiwan

VHFp1 - 3 **Image Qualities of the Curved OLED Displays with Different Picture Setting Modes**

J.-Y. Huang, C.-W. Hsu, H.-S. Chen, P.-L. Sun, M. R. Luo[*]

Nat. Taiwan Univ. of S&T, Taiwan
[*]Univ. of Leeds, UK

VHFp1 - 4 **Quantitative Visual Assessment of Moving Image Quality for 4K8K UHDTV Systems**

I. Kawahara, H. Sato, H. Tabata

Keisoku Giken, Japan

VHFp1 - 5 **Equivalent Spatial Resolution of RxGxBx Subpixel Arrangements**

H.-C. Lin, C.-H. Wen, P.-L. Sun, S.-P. Wang[*], K.-J. Hu[*], M.-C. Lo[**]

Nat. Taiwan Univ. of S&T, Taiwan
[*]ITRI, Taiwan
[**]Shih Hsin Univ., Taiwan

VHFp1 - 6 **Comparison of Accommodation and Convergence among Real Object, 2D Display and 3D Display When a Target Moves along the Depth Direction**

S. Mochiduki, Y. Yokoyama, H. Takahira, M. Yamada

Tokai Univ., Japan

VHFp1 - 7 **Analysis of Fundamental Characteristics of Movement of Eye and Head When Indexing the Target by the Finger**

K. Kikuchi, H. Takahira, R. Ishiro, Y. Tanaka, M. Endou, M. Yamada

Tokai Univ., Japan

VHFp1 - 8 **Analysis of Accommodation and Convergence while Viewing 4K Images**

H. Takahira, S. Mochiduki, Y. Yokoyama, M. Yamada

Tokai Univ., Japan

VHFp1 - 9 **Analysis of Convergence and Accommodation while Viewing 3D Movies**

Y. Shiratori, M. Kitade, H. Takahira, S. Mochiduki, Y. Yokoyama, M. Yamada

Tokai Univ., Japan

VHFp1 - 10 **Analysis of Accommodation and Convergence Eye Movement among Medium When a Target Moves along the Depth Direction**

Y. Yokoyama, S. Mochiduki, H. Takahira, M. Yamada

Tokai Univ., Japan

----- Break -----

17:00 - 18:00 **Room 302 A**

VHF3: Moving Image Quality

Chair: T. Kurita, NHK Media Tech., Japan
Co-Chair: Y. Nakamura, Mitsubishi Elec., Japan

VHF3 - 1 **17:00** **Method of Verifying Accuracy of Pursuit Cameras**

M. Rejhon, J. Bergquist[*], E. F. Kelley[**], P. A. Boynton[***]

Rejhon Techs., Canada
[*]Nokia Techs., Japan
[**]KELTEK, USA
[***]NIST, USA

VHF3 - 2 **17:20** **A Method of Image Quality Evaluation for Adaptive Temporal Aperture Control with Hold-Type Displays**

T. Usui, H. Sato, Y. Takano, T. Yamamoto, K. Ishii

NHK, Japan

VHF3 - 3 **17:40** **Image Quality Metrics for Color Breakup Based on Perceived Image Simulation**

K. Hirai, N. Torige, T. Horiuchi, S. Tominaga, T. Shibuya[*], F. Hasegawa[*], M. Nose[*]

Chiba Univ., Japan
[*]Ricoh, Japan

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 10:00 **Room 201**

VHF4: Display Legibility

Chair: Y. Shimodaira, Shizuoka Univ., Japan
Co-Chair: N. Hiruma, NHK, Japan

VHF4 - 1
9:00

Model for Flicker Analysis in Reflective LCD in Low Frequency Driving

*Y. Kubota, R. Hatsumi, S. Fukai, D. Kubota, Y. Hirakata, S. Yamazaki, M. Hirose[*], M. Kasuga[**,***]*

Semiconductor Energy Lab., Japan
[*]Univ. of Tokyo, Japan
[**]Sakushin Gakuin Univ., Japan
[***]Utsunomiya Univ., Japan

VHF4 - 2
9:20

Effect of Font Types and Pixel Density of Electronic Displays on the Legibility of Japanese Characters

Y. Hisatake, T. Kawamorita[*], Y. Kanno, S. Takahashi[**], M. Ito[**], H. Takahashi[**]

Japan Display, Japan
[*]Kitasato Univ., Japan
[**]DNP, Japan

VHF4 - 3
9:40

Psychological Derivation of Optimal Line Space for Legible Japanese Documents Based on Scheffe's Method of Paired Comparison

Y. Yonezu, T. Tokui, N. Ishikawa, T. Matsui

Gunma Univ., Japan

----- Break -----

10:45 - 12:15 **Room 201**

DES3/VHF5: System Design and Evaluation in Augmented Reality
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: K. Morita, Nat. Traffic Safety & Environment Lab., Japan
Co-Chair: K. Sakamoto, Panasonic, Japan

DES3/ VHF5 - 1:
10:45

Invited **Simulation of Traffic Accident Scenarios with an Augmented Reality Vehicle**

N. Uchida, T. Tagawa, K. Sato

Japan Automobile Res. Inst., Japan

DES3/ VHF5 - 2:
11:10

Invited **The Realistic 3D Image Display Using Direct Light Scanning Method**

H. Horimai, K. Hattori[*], T. Umezaki

3Dragons LLC, Japan
[*]Chubu Univ., Japan

DES3/ VHF5 - 3 11:35 **Fast Calculation Algorithm Based on Point-Based Method for CGHs Using Polygon Model**

Y. Ogihara, Y. Sakamoto

Hokkaido Univ., Japan

DES3/ VHF5 - 4 11:55 **The Superiority of Widespread Monocular Augmented Reality Presentation in a Manual Tracing Task**

A. Kitamura, H. Naito, T. Kimura[*], K. Shinohara, T. Sasaki[**], H. Okumura[**]

Osaka Univ., Japan
[*]Kansai Univ. of Welfare Scis., Japan
[**]Toshiba, Japan

----- Lunch -----

13:30 - 14:30 **Room 302 A**

VHF6: Mobile Human Factors and 'Kansei' Evaluation

Chair: J. S. Kimmel, Nokia Techs., Finland
Co-Chair: T. Nakatsue, Sony, Japan

VHF6 - 1 13:30 **Required Performances of Electronic Displays for Smartphones Revealed by the Survey Results**

Y. Hisatake, M. Takemoto[*], S. Kubota[**]

Japan Display, Japan
[*]Seikei Univ., Japan
[**]Ergo Design Lab., Japan

VHF6 - 2 13:50 **An Overall Image Quality Model for Mobile Displays under Different Lighting Conditions**

R. Gong[*], H. Xu[*], M. R. Luo[,**]*

[*]Zhejiang Univ., China
[**]Univ. of Leeds, UK

VHF6 - 3 14:10 **Emotion Prediction Model of Museum Lighting**

C.-J. Chou, H.-W. Luo, H.-S. Chen, M. R. Luo[*]

Nat. Taiwan Univ. of S&T, Taiwan
[*]Univ. of Leeds, UK

----- Break -----

15:15 - 16:20 **Room 301**

3D7/VHF7: Visual Perception for 3D System

Chair: K.-H. Lee, Korea Photonics Tech. Inst., Korea
Co-Chair: Y. Hisatake, Japan Display, Japan

3D7/VHF7 - 1: 15:15 ***Invited*** **Towards the ISO Guideline for Image Safety in Stereoscopic Viewing**

T. Bando

AIST, Japan

3D7/VHF7 - 2 15:40 **The Impact of Screen Size on 3D Flicker-Free Luminance**

P.-L. Sun[*], Y.-P. Hsieh[*], H.-S. Chen[*], M. R. Luo[,**]*

[*]Nat. Taiwan Univ. of S&T, Taiwan
[**]Univ. of Leeds, UK

3D7/VHF7 - 3 16:00 **Measurement of Visual Fatigue Induced by Stereoscopic Display Using an Oddball Based Event-Related Potential Experiment**

P. Ye, H. Liang, J. Wang, F. Chen, S. Yang, J. Chen, X. Wu, D. Gao

Nat. Sun Yat-Sen Univ., China

Author Interviews and Demonstrations
16:45 – 17:45

Supporting Organizations:
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Technical Group on Information Display, ITE

RECEPTION

Wednesday, December 3, 2014
19:00 – 21:00
Room “Continental” (4F)
Hotel Okura Niigata
See page 12 for details

Workshop on Projection and Large-Area Displays and Their Components

Wednesday, December 3

14:00 - 14:05 **Room 201**

Opening

Opening Remarks
14:00

S. Ouchi, Hitachi, Japan

14:05 - 15:30 **Room 201**

PRJ1: Solid-State Light Source Technologies for Projector

Chair: P. Hickl, Barco Control Rooms, Germany
Co-Chair: H. Nakano, Barco, Japan

PRJ1 - 1: ***Invited*** **SiC Light Emitting Diode and Its Polarization**
14:05 **Control Using a Dressed Photon**

T. Kawazoe, K. Nishioka, M. Ohtsu

Univ. of Tokyo, Japan

PRJ1 - 2 **High Power AlGaInP Red Laser Diode for Display**
14:30 **Applications**

K. Kuramoto, T. Nishida, S. Abe, M. Miyashita, K. Mori, T. Yanagisawa, T. Yagi

Mitsubishi Elec., Japan

PRJ1 - 3 **A New Technology for Stabilization of Chromaticity**
14:50 **in Laser Projectors**

Y. Ogi, Y. Seo, S. Ouchi

Hitachi, Japan

PRJ1 - 4 **Lighting Technology for Automotive Headlamps**
15:10

T. Masuda, H. Tanaka, Y. Shibata, M. Hayakawa, S. Yamamura

Koito Manufacturing, Japan

----- Break -----

15:45 - 17:15 **Room 201**

PRJ2: Vehicle Display

Chair: J. Thompson, Texas Instrs., USA
Co-Chair: K. Ohara, Texas Instrs., Japan

PRJ2 - 1: 15:45 ***Invited*** **Projection Technology Will Take Automotive Head-Up Display to the Next Level**

C. Kusaka, J. Kimura

Techno Syss. Res., Japan

PRJ2 - 2: 16:10 ***Invited*** **DLP Technology: Enabling the Next Generation of Automotive Head-Up Display Systems**

G. Pettitt, J. Thompson, J. Ferri, M. McCormick

Texas Instrs., USA

PRJ2 - 3 16:35 **Intelligent Head-Up-Display for Driver Assistance**

S.-W. Cheng, J.-T. Hsu

Automotive Res. & Testing Ctr., Taiwan

PRJ2 - 4 16:55 **Development of Car Display System with Free-Form Screen**

S. Okagaki, J. Kondo, H. Sakamoto, S. Nakahara, M. Kuwata, A. Heishi, H. Yoshii, K. Nakamura, K. Kojima, M. Uno

Mitsubishi Elec., Japan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 10:05 **Room 301**

PRJ3: Projection Technologies

Chair: D. Cuypers, imec, Belgium
Co-Chair: H. Kikuchi, NHK, Japan

PRJ3 - 1: 9:00 ***Invited*** **Speckle Reduction by Current-Induced Magneto-Optical Effect Using P-type ZnO Device**

N. Tate, T. Kawazoe, M. Ohtsu

Univ. of Tokyo, Japan

PRJ3 - 2 9:25 **Speckle Measurement of Laser Display by Means of Simulating to Human Eye Perception**

T. Fukui, K. Suzuki, S. Kubota

Oxide, Japan

PRJ3 - 3
9:45

Speckle Reduction by Optimizing Pulse Width of Drive Current for Red Laser Diodes

T. Nishida[,**], T. Yagi[*], H. Murata[**], Y. Fujiwara[**], M. Takemi[*]*

[*]Mitsubishi Elec., Japan
[**]Osaka Univ., Japan

----- Break -----

10:45 - 11:50 **Room 301**

PRJ4: Wearable Display

Special Topics of Interest on Augmented Reality and Virtual Reality

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

PRJ4 - 1:
10:45

Invited **Laser Light Field Display Based on a Retinal Scanning Array**

M. Ide, K. Yoda, S. Kato
Citizen Holdings, Japan

PRJ4 - 2
11:10

Compact Optical Engine for Smart Glass

H. Baba, T. Totani, T. Hashizume
Seiko Epson, Japan

PRJ4 - 3
11:30

Light-Guide Optical Element Utilizing Notch Filters for See-Through Glasses

X. Xiao, X. Lin, X. Tan
Beijing Inst. of Tech., China

----- Lunch -----

13:30 - 14:30 **Room 302 B**

PRJ5: Projection Applications

Chair: F. Shevlin, DYOPTYKA, Ireland
Co-Chair: Y. Asakura, Nittoh Kogaku, Japan

PRJ5 - 1
13:30

Ultra-Short-Throw 4K Projector with Solid-State Light Source

T. Mochizuki, Y. Sato, J. Nishikawa, R. Miyao, H. Kikuchi
Sony, Japan

PRJ5 - 2
13:50

Stable Optical Projection Screen for Near Seamless Display Walls

P. Hickl
Barco Control Rooms, Germany

PRJ5 - 3 14:10 **Inorganic Alignment Layers for Liquid Crystal Grating Devices**

D. Cuypers[*], H. D. Smet[,**]*

[*]imec, Belgium
[**]Ghent Univ., Belgium

14:30 - 14:42 **Room 302 B**

***Short Presentation* PRJp: Projection**

All authors of poster papers for the PRJp1 session will give a brief, 3-minute oral presentation with no discussion time in advance

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

9:00 - 12:00 **Exhibition Hall B**

***Poster* PRJp1: Projection**

PRJp1 - 1 **A Wide Laser Head-Up Display with the Complex Refractive Elements**

S.-W. Yang, J.-H. Wu[*], I.-K. Hsu, P.-J. Wu[**], C.-Y. Chen[*]

Nat. Central Univ., Taiwan
[*]Nat. Yunlin Univ. of Sci. & Tech., Taiwan
[**]Nat. Chiao Tung Univ., Taiwan

PRJp1 - 2 **A Study of Optical Design of Laser Projector**

W.-T. Li, K.-D. Huang

Nat. Kaohsiung First Univ. of S&T, Taiwan

PRJp1 - 3 **Development of Column-Parallel LED Screen with Flexible Shape**

K. Sato[*], A. Tsuji[*], S. Suyama[*], H. Yamamoto[,**,***]*

[*]Univ. of Tokushima, Japan
[**]JST-CREST, Japan
[***]Utsunomiya Univ., Japan

PRJp1 - 4 **Image Dispersion Compensation Based on Spatial-Multiplexed Holographic Optical Elements**

H.-T. Lin, H.-S. Syu, W.-C. Su

Nat. Changhua Univ. of Education, Taiwan

Supporting Organizations:
Laser Display Technology Research Group, Optical Society of Japan
Technical Group on Information Display, ITE

Workshop on Electronic Paper

Wednesday, December 3

14:00 - 14:50 **Room 302 A**

EP1: Electrophoretic Displays

Chair: G. Zhou, South China Normal Univ., China
Co-Chair: M. Tsuchiya, Innova Dynamics, Japan

EP1 - 1: 14:00 ***Invited*** **Three Particle Microencapsulated Electrophoretic Display**

M. Wang, C. Lin, P. Laxton, H. Du, H. Zang, M. McCreary[*]

E-Ink California, USA
[*]E-Ink, USA

EP1 - 2: 14:25 ***Invited*** **Biprimary Dual-Particle Electrokinetic Displays with 70% Reflectance and Greatly Improved Color Saturation**

S. Mukherjee, J. Heikenfeld, N. Smith[*], M. Goulding[*], C. Topping[*], S. Norman[*], L. Kramer[**], Q. Liu[**]

Univ. of Cincinnati, USA
[*]Merck Chems., UK
[**]Hewlett Packard Res. Lab., USA

----- Break -----

15:45 - 17:00 **Room 302 A**

EP2: Various Technologies for e-Paper

Chair: M. Omodani, Tokai Univ., Japan
Co-Chair: N.-S. Roh, Samsung Display, Korea

EP2 - 1: 15:45 ***Invited*** **Review of Paper-Like Display Technologies**

G. Zhou

South China Normal Univ., China

EP2 - 2: 16:10 ***Invited*** **The Progress of Electrowetting Display and Its Applications**

L.-C. Chen, W.-Y. Cheng, K.-L. Lo, R.-L. Chang

ITRI, Taiwan

EP2 - 3: 16:35 ***Invited*** **Frontlighting Technologies for Reflective Displays: e-Papers, MEMS, MEOMS, LCDs**

K. Käläntär

Global Optical Solutions, Japan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 10:05 **Marine Hall**

EP3: Chromic Displays

Chair: N. Kobayashi, Chiba Univ., Japan
Co-Chair: M. Higuchi, NIMS, Japan

EP3 - 1: 9:00 ***Invited*** **Thermo-Switchable Imaging Media with Dual Emissive and Reflective Modes**

K. Nakamura, K. Ogasawara, Y. Kobayashi, K. Kanazawa, N. Kobayashi

Chiba Univ., Japan

EP3 - 2 9:25 **Improvement of Coloration Properties of Electrochromic Cell by Immobilizing Organic Electrochromic Molecules on the Electrode**

N. Ura, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

EP3 - 3 9:45 **Design and Preparation of Metallo-Supramolecular Polymers with Improved Electrochromic Properties**

M. Higuchi[*,**]

[*]NIMS, Japan
[**]JST-CREST, Japan

10:05 - 10:11 **Marine Hall**

Short Presentation EPp: Electronic Paper

All authors of poster papers for the EPp session will give a brief, 3-minute oral presentation of with no discussion time in advance.

----- Lunch -----

Author Interviews and Demonstrations
18:30 – 19:30

13:30 - 16:30 **Exhibition Hall B**

Poster EPp1: Electronic Paper

EPp1 - 1 13:30 **Improvement of Response of an Electrophoretic Display by Controlling Liquid Flow**

K. Sato, M. Omodani

Tokai Univ., Japan

EPp1 - 2 **Development of Twisting Balls for e-Paper by a Microchannel Device**

H. Akita, Y. Awatsu, Y. Takizawa

Soken Chem. & Eng., Japan

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Thursday, December 4

9:00 - 9:10 **Room 201**

Opening

Opening Remarks: 10th Anniversary Opening Remarks
9:00

M. Nakamoto, Shizuoka Univ., Japan

9:10 - 10:30 **Room 201**

MEET1: Emerging Quantum Dots and Nanotechnologies

Chair: W. Milne, Univ. of Cambridge, UK
Co-Chair: Y. Bonnassieux, Ecole Polytechnique, France

MEET1 - 1: 9:10 ***Invited*** **Images and Cathodoluminescent Spectra of Red and Green Quantum Dots**

J. Silver, G. R. Fern, T. G. Ireland, S. Coe-Sullivan[*]*, J. S. Steckel*[*]

Brunel Univ., UK
[*]QD Vision, USA

MEET1 - 2: 9:30 ***Invited*** **Progress in Quantum Dots for Liquid Crystal Displays**

S. Coe-Sullivan

QD Vision, USA

MEET1 - 3: 9:50 ***Invited*** **Red Quantum Rods under the Electron Microscope**

G. R. Fern, S. Jack, F. Schröder-Oeynhausen, T. Jochum[*]

Brunel Univ., UK
[*]CAN, Germany

MEET1 - 4: 10:10 ***Invited*** **Advancements in On-Chip Quantum Dots for LED Backlights in Wide Color Gamut LCD Displays**

J. Osinski, J. Kurtin, N. Puetz, B. Theobold, S. Nathan, B. Mangum

Pacific Light Techs., USA

----- Break -----

10:45 - 12:45 **Room 201**

MEET2: Fundamental Components and Process Technologies

Chair: D. Pribat, Sungkyukwan Univ., Korea
Co-Chair: F. Templier, CEA-LETI, France

MEET2 - 1: 10:45 ***Invited*** **CNTs and Graphene for X-ray Systems and Other Applications**

W. I. Milne[,**], R. J. Parmee[*,**], J. Cameron[**], C. Li[***], W. Lei[***], B. Wang[***], M. T. Cole[*,**]*

[*]Univ. of Cambridge, UK
[**]Cambridge X-ray Syss., UK
[***]Southeast Univ., China

MEET2 - 2: 11:05 ***Invited*** **Fabrication of Lighting Lamp with Carbon Nanotube Emitters Beam (C-beam)**

K. C. Park

Kyung Hee Univ., Korea

MEET2 - 3 11:25 **Sub-Micron Transparent Metal Mesh Conductor for Touch Screen Displays**

B. Kobrin, I. McMackin, J. Geddes, O. Seitz, M. Aryal, J. Wassei

Rolith, USA

MEET2 - 4: 11:45 ***Invited*** **Gaussian Density-of-States Model for Organic Devices**

Y. Bonnassieux, S. Jung, C. H. Kim, G. Horowitz

Ecole Polytechnique, France

MEET2 - 5 12:05 **Crystallization Technique with Carbon Nanotube Electron Beam (C-beam) Exposure Technique**

H. T. Park, J. S. Kang, J. H. Hong, H. Lee, W. J. Kim, K. C. Park

Kyung Hee Univ., Korea

MEET2 - 6 12:25 **Cathodoluminescence Properties of Silicon Thin Films with Carbon Nanotube Electron Beam (C-beam) Exposure Technique**

W. J. Kim, J. S. Kang, H. R. Lee, J. H. Hong, H. T. Park, K. C. Park

Kyung Hee Univ., Korea

----- Lunch -----

13:30 - 14:50 **Room 201**

MEET3: EL Quantum Dots Technologies

Chair: S. Coe-Sullivan, QD Vision, USA
Co-Chair: J. Silver, Brunel Univ., UK

MEET3 - 1: ***Invited*** **All Solution Processed QLED**
13:30

J. Jang, J. E. Lee

Kyung Hee Univ., Korea

MEET3 - 2: ***Invited*** **Efficient Quantum Dot Light-Emitting Diodes**
13:50 **by Improving Charge Carrier Balance**

M. Park, H. Jung, J. Lim[*], W. Bae[**], J. Kwak[***], K. Char, S. Lee, C. Lee

Seoul Nat. Univ., Korea
[*]Los Alamos Nat. Lab., USA
[**]KIST, Korea
[***]Dong-A Univ., Korea

MEET3 - 3: ***Invited*** **Quantum Dot Light-Emitting Diodes for**
14:10 **Efficient, Solution-Processed Flat Panel Displays**

J. R. Manders[*], Y. Zheng[*], L. Qian[*], Y. Yang[*], A. Titov[*], J. Hyvonen[*], J. Tokarz-Scott[*], W. Cao[**], J. Xue[**], C. Morton[*], P. H. Holloway[,**]*

[*]NanoPhotonica, USA
[**]Univ. of Florida, USA

MEET3 - 4 **Enhanced Efficiency of Quantum Dot Light-Emitting**
14:30 **Diodes by Modifying Sol-Gel Based Metal-Doped ZnO Electron Transport Layer**

H. Jung, M. Thambidurai, J. Lim, K. Char, S. Lee, C. Lee

Seoul Nat. Univ., Korea

----- Break -----

15:15 - 16:55 **Room 201**

MEET4: Novel Materials and Components

Chair: K. C. Park, Kyung Hee Univ., Korea
Co-Chair: G. R. Fern, Brunel Univ., UK

MEET4 - 1: ***Invited*** **Graphene-Silicon Composites for Improved**
15:15 **Solar Cells**

E. Moyen, J. Jo, D. Pribat

Sungkyunkwan Univ., Korea

MEET4 - 2 **Conducting Graphene Thin Film on Glass with**
15:35 **Electron Beam Irradiation**

G. C. Lim, J. S. Kang, J. S. Ahn, K. C. Park

Kyung Hee Univ., Korea

MEET4 - 3: 15:55 ***Invited*** **High Target Utilization Sputtering of Thin Film Metal Oxides for Large-Area Electronics**

A. J. Flewitt

Univ. of Cambridge, UK

MEET4 - 4 16:15 **Super Smart Window–Its Energy Design and Some Early Research**

H. Morita, H. Yoshida

Tokyo Univ. of Sci., Yamaguchi, Japan

MEET4 - 5 16:35 **Resonator-Type Infrared Detector Released by Plasmaless Sacrificial Si Etching**

J.-H. Jeong, S. Kumagai, S. Tajima[*], T. Hayashi[*], K. Yamakawa[**], M. Sasaki

Toyota Tech. Inst., Japan
[*]Nagoya Univ., Japan
[**]Katagiri Eng., Japan

----- Break -----

17:00 - 18:40 **Room 201**

MEET5: Nanotechnology Display and Imaging

Chair: J. Jang, Kyung Hee Univ., Korea
Co-Chair: A. J. Flewitt, Univ. of Cambridge, UK

MEET5 - 1: 17:00 ***Invited*** **High-Brightness GaN LED Arrays Hybridized on Silicon Interconnect at a Pixel-Pitch of 10 µm.**

F. Templier, H. Bono, J.-M. Bethoux, F. Marion, I.-C. Robin, M.-A. di Forte-Poisson[*]

CEA-LETI, France
[*]3-5 Lab, France

MEET5 - 2: 17:20 ***Invited*** **Mechanical Strengthening of Silicon Torsion Bar of Scanning Micro Mirror by Hydrogen Anneal**

S. Yoshida, S. Tanaka, M. Esashi

Tohoku Univ., Japan

MEET5 - 3: 17:40 ***Invited*** **Formation of Conductive AlN by a New Spontaneous Via Holes Technique and Development of Vertical Deep Ultra-Violet Light Emitting Device (RefV-LED)**

N. Kurose, Y. Aoyagi

Ritsumeikan Univ., Japan

MEET5 - 4: 18:00 ***Invited*** **High Brightness Microdisplays by Monolithic Integration of III-V LEDs and Thin Film Silicon Transistors**

V. W. Lee

Lumiode, USA

MEET5 - 5: 18:20 ***Invited*** **Quantum Photonic Imager (QPI): A New Display Technology and Its Applications**

H. S. El-Ghoroury, Z. Y. Alpaslan

Ostendo Techs., USA

Author Interviews and Demonstrations
18:30 – 19:30

EXHIBITION

12:40 – 18:00 Wednesday, Dec. 3, 2014
10:00 – 18:00 Thursday, Dec. 4, 2014
10:00 – 14:00 Friday, Dec. 5, 2014

Exhibition Hall B
TOKI MESSE Niigata Convention Center

Free admission with your registration name tag

IDW ’14 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, December 2, 2014
Room 301, 3F
TOKI MESSE Niigata Convention Center

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

Final Program

The final program of IDW ’14 will be available on the website (http://www.idw.or.jp/) from the middle of November.

Workshop on Display Electronic Systems

Thursday, December 4

9:00 - 10:35 **Room 302 B**

DES1: Display Technologies in Augmented Reality

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: K. Kiyokawa, Osaka Univ., Japan
Co-Chair: K. Makita, AIST, Japan

DES1 - 1: 9:00 ***Invited*** **Diminished Reality Based on Image Inpainting for Visually Removing Real Objects in Real Time**

N. Kawai
Nara Inst. of S&T, Japan

DES1 - 2: 9:25 ***Invited*** **HMD Technologies for AR**

K. Kiyokawa
Osaka Univ., Japan

DES1 - 3: 9:50 ***Invited*** **Fog Display as a Co-creative Expression Media**

Y. Miwa, S. Itai, Y. Terada
Waseda Univ., Japan

DES1 - 4 10:15 **Security Doors**

H.-F. Wang, C.-C. Lan, J.-Y. Huang, T.-H. Lin, H.-S. Chen
Nat. Taiwan Univ. of S&T, Taiwan

----- Break -----

10:45 - 11:55 **Room 302 B**

DES2: Image Processing

Chair: A. Ninan, Dolby Labs., USA
Co-Chair: A. Sakaigawa, Japan Display, Japan

DES2 - 1: 10:45 ***Invited*** **Evolution of Displays through Advances in Next Generation Video**

A. Ninan
Dolby Labs., USA

DES2 - 2: 11:10 ***Invited*** **Pursuit of Visually Lossless Compression and Practical Tradeoffs in Display Systems**

D. F. Stolitzka
Samsung Display, USA

DES2 - 3
11:35 **Study of Low Color Shift Design with a WRGB LCD Panel**

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

Shenzhen China Star Optoelect. Tech., China

----- Lunch -----

Author Interviews and Demonstrations
18:30 – 19:30

13:30 - 16:30 **Exhibition Hall B**

***Poster* DESp1: Display Electronic Systems**

DESp1 - 1 **Design of Human Face Recognition Application on Wide Viewing Angle Near-Eye See-Through Display**

Z. Song, Z. Hu, L. Wang, Y. Tang

Southeast Univ., China

DESp1 - 2 **A Study of Optical Design of Automotive Head-Up Display**

Y.-C. Fang, B.-R. Hsueh[*], Y.-H. Chang

Nat. Kaohsiung First Univ. of S&T, Taiwan
[*]Kao Yuan Univ. of S&T, Taiwan

DESp1 - 3 **Amorphous Silicon Integrated Gate Driver Circuits for High Resolution and Narrow Bezel Panel Application**

G.-T. Zheng, P.-T. Liu[*], C.-H. Chang[*], S.-H. Hung[*], W.-C. Wang[**], Y.-H. Chang[**], W.-C. Wang[**], W.-L. Sung[**]

Nat. Tsing Hua Univ., Taiwan
[*]Nat. Chiao Tung Univ., Taiwan
[**]Chunghwa Picture Tubes, Taiwan

DESp1 - 4 **Proposal of a Negative Level Shifter for a Negative High Voltage Generator**

M. Fukuhara, A. Ueda, M. Urakami, S. Hayakawa, M. Yoshida

Tokai Univ., Japan

DESp1 - 5 **A Novel Charge Sharing Method for Liquid Crystal Displays with Lower Power Consumption**

Y. Mu[,**], X. Guo[*], X. Tang[**]*

[*]Shanghai Jiao Tong Univ., China
[**]Infovision Optoelect., China

DESp1 - 6 **Introduction of a Liquid Crystal Driving Circuit**

X. Xu, Z. Song, J. Chang, C. Gang, A. Jian, R. Lung, X. Chen, B. Liao

Shenzhen China Star Optoelect. Tech., China

DESp1 - 7 **Reducing Influence of Bias Stress on AMOLED Displays by Driving in Linear Regime: a Sensitivity Perspective**

F. D. Roose[,**], K. Myny[**], J. Genoe[*,**], P. Heremans[*,**], W. Dehaene[*]*

[*]KULeuven, Belgium
[**]imec, Belgium

DESp1 - 8 **External TFT Compensating System for AMOLED Displays**

W.-C. Chiou, C.-C. Tsou, P.-S. Chen, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

DESp1 - 9 **A Differential Signal Impedance Matching Solution**

Y. Mu[,**], X. Guo[*], X. Tang[*,**]*

[*]Shanghai Jiao Tong Univ., China
[**]Infovision Optoelect., China

DESp1 - 10 **Super-Resolution Based on Edge Detection and Sub-Regional Interpolation**

H.-L. Hu, H. Li, L.-W. Chu, C. Li, C.-C. Lo

Shenzhen China Star Optoelect. Tech., China

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

10:45 - 12:15 **Room 201**

DES3/VHF5: System Design and Evaluation in Augmented Reality
Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: K. Morita, Nat. Traffic Safety & Environment Lab., Japan
Co-Chair: K. Sakamoto, Panasonic, Japan

DES3/VHF5 - 1: 10:45 ***Invited*** **Simulation of Traffic Accident Scenarios with an Augmented Reality Vehicle**

N. Uchida, T. Tagawa, K. Sato

Japan Automobile Res. Inst., Japan

DES3/VHF5 - 2: 11:10 ***Invited*** **The Realistic 3D Image Display Using Direct Light Scanning Method**

H. Horimai, K. Hattori[*], T. Umezaki

3Dragons, Japan
[*]Chubu Univ., Japan

DES3/ VHF5 - 3 11:35 **Fast Calculation Algorithm Based on Point-Based Method for CGHs Using Polygon Model**

Y. Ogihara, Y. Sakamoto

Hokkaido Univ., Japan

DES3/ VHF5 - 4 11:55 **The Superiority of Widespread Monocular Augmented Reality Presentation in a Manual Tracing Task**

A. Kitamura, H. Naito, T. Kimura[*]*, K. Shinohara, T. Sasaki*[**]*, H. Okumura*[**]

Osaka Univ., Japan
[*]Kansai Univ. of Welfare Scis., Japan
[**]Toshiba, Japan

----- Lunch -----

13:30 - 14:30 **Room 201**

DES4: Display Driving Technologies

Chair: A. Sakaigawa, Japan Display, Japan
Co-Chair: T. Yamamoto, NHK, Japan

DES4 - 1 13:30 **Low Power Liquid Crystal Driving Technique Based on Capacitors for 1-Pixel Display**

H. Manabe, M. Date[*]*, H. Takada*[*]*, H. Inamura*

NTT DoCoMo, Japan
[*]NTT, Japan

DES4 - 2 13:50 **Ultra Low Power LCD TV Using RGBW System**

C. Jung, Y. Chu, Z. Lai, W. Li, Y. Han, K. Kim, L. Zhang, J. Jun

BOE Tech. Group, China

DES4 - 3 14:10 **Pixel Circuit with Fast Charging Capability Using Charge-Sharing Method for Blue-Phase Liquid Crystal Displays**

P.-C. Lai, M.-H. Cheng, P.-C. Lai, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

----- Break -----

Final Program

The final program of IDW '14 will be available on the website (http://www.idw.or.jp/) from the middle of November.

15:15 - 16:15 **Room 201**

DES5: Display Interface and Driving Technologies

Chair: H. Okumura, Toshiba, Japan
Co-Chair: T. Yamamoto, NHK, Japan

DES5 - 1
15:15
An Automatic DC Self-Adjusting Encoder of 5Gbps/ Lane Intra-Panel Interface for High Speed Transmission

L.-W. Chang, Y.-C. Wu, Y.-C. Kang, W.-T. Chen, C.-P. Ho, C.-H. Yang

AU Optronics, Taiwan

DES5 - 2
15:35
A Novel Method to Reduce the Loss of the Data in High Resolution LCD

S.-Y. Wu, Y.-L. Ho, Y.-C. Chen, H.-H. Chen, H.-M. Su, W.-Z. Zeng

Chunghwa Picture Tubes, Taiwan

DES5 - 3
15:55
A P-Type LTPS TFT Compensation Pixel Circuit for Self-Emission Displays with GOA

Y.-T. Lin, H.-Y. Hsieh, C.-H. Chen, Y.-C. Lai, M.-Y. Lu, C.-C. Kuo, C.-T. Chuang, Y.-S. Huang, C.-N. Yeh, N. Sugiura

AU Optronics, Taiwan

Author Interviews and Demonstrations
16:45 – 17:45

Supporting Organizations:
Shin-etsu Section, IEEE
Special Interest Group on Mixed Reality, The Virtual Reality Society of Japan
Technical Committee on Electronic, Information Displays, Electronics Society IEICE
Technical Group on Information Display, ITE
Technical Group on Information Sensing Technologies, ITE
Technical Committee on Image Engineering, Systems Society, IEICE

IDW '14 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, December 2, 2014
Room 301, 3F
TOKI MESSE Niigata Convention Center

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

Workshop on Flexible Electronics

Wednesday, December 3

14:00 - 14:05 **Snow Hall A**

Opening

Opening Remarks
14:00

T. Sekitani, Osaka Univ., Japan

14:05 - 15:40 **Snow Hall A**

FLX1: Flexible Backplane

Chair: T. Kamata, AIST, Japan
Co-Chair: T. Sekitani, Osaka Univ., Japan

FLX1 - 1: 14:05 ***Invited*** **Oxide Thin Film Transistors for Flexible Display**

Y. Uraoka, M. Fujii, M. Horita, Y. Ishikawa

Nara Inst. of S&T, Japan

FLX1 - 2: 14:30 ***Invited*** **Improvement in the Field-Effect Mobility of Metal Oxide TFTs by Advanced Stack Channel Structure and Defect Control for the Next-Generation High-End Active-Matrix Displays**

J. K. Jeong, A. Y. Hwang, K. Ji, J. H. Song, C. K. Lee, H. Y. Jung

Inha Univ., Korea

FLX1 - 3: 14:55 ***Invited*** **Vertical Organic Field-Effect Transistors for Truly Flexible AMOLED Backplanes**

G. Schwartz, H. Kleemann, J. Blochwitz-Nimoth

Novaled, Germany

FLX1 - 4 15:20 **Flexibility Improvement of LTPS-TFT for Foldable AMOLED**

J.-Y. Yan, W.-W. Tsai, B.-Y. Su, C.-W. Su, H.-C. Yao, T.-J. Wang, W.-C. Kao, Y.-C. Lin, C.-Y. Hung, W.-H. Chen, M.-J. Yang, C.-Y. Chiang, K.-L. Chuang, W.-T. Wang, C.-C. Lee

ITRI, Taiwan

----- Break -----

15:45 - 16:25 **Snow Hall A**

FLX2: Flexible Displays and Devices

Chair: K. Uemura, Nippon Steel & Sumitomo Metal, Japan
Co-Chair: H. Maeda, DNP, Japan

FLX2 - 1
15:45
Bezel-Less PMOLED Modules with Flexible Substrates for Scalable Display System

H. Iijima, M. Izuchi, H. Makino, T. Wakabayashi, K. Sasai, Y. Okumoto, A. Miyamoto, K. Morita

Panasonic, Japan

FLX2 - 2
16:05
A Flexible Display Panel, a Flexible Battery, and a Flexible Printed Circuit for Wearable Display

T. Miwa, R. Tajima, Y. Goto, Y. Saito, T. Oguni, H. Miyake, A. Hitotsuyanagi, J. Goto, H. Katagiri, S. Okano, M. Kaneyasu, M. Hiroki, M. Takahashi, S. Yamazaki

Semiconductor Energy Lab., Japan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 12:00 **Exhibition Hall B**

Poster FLXp1: Flexible Electronics

FLXp1 - 1
A 4.6-in. Flexible AMOLED Encapsulated by Sputtered Thin Film and Laminated High Barrier Film

L. Lin, C. Zhao, P. Dang, X. Liu, X. Huang, X. Gao

Visionox R&D Ctr., China

FLXp1 - 2
Ultra-High Gas Barrier Film Deposition Using a Novel Precursor, TG-4E, by PECVD for OLED Devices

H. Chiba, M. Shimizu, D. Hara, K. Tokuhisa

TOSOH, Japan

FLXp1 - 3
Flexible Dye Sensitized Solar Cells for Device Power Applications

J. Silver, T. G. Ireland, G. R. Fern, M. Spratt[*]

Brunel Univ., UK
[*]G24 Power, UK

FLXp1 - 4 **Enhanced Charge Injection of Organic Field-Effect Transistor with 6, 13-Bis(triisopropylsilylethynyl) Pentacene Using a Metal Oxide Buffer Layer**

E.-Y. Shin, C.-H. Shin, M.-H. Kim, J.-H. Lee, Y. Choi

Hanbat Nat. Univ., Korea

FLXp1 - 5 **The Study on Electrical Characteristics Variation of Flexible Pentacene Based Thin Film Transistors on PET Substrate with/without Surface Treatments**

Y. W. Wang, W. L. Liu, J. S. Jiang, T. M. Jian

Nat. Changhua Univ. of Education, Taiwan

FLXp1 - 6 **Structure Design of IGZO TFTs with Stress Analysis for Flexible Applications Using Finite Element Method**

M. H. Lee, S.-M. Hsu[*]*, C. Liu, J.-D. Shen*

Nat. Taiwan Normal Univ., Taiwan
[*]*Nat. Taiwan Univ., Taiwan*

FLXp1 - 7 **Flexible Polymer Dispersed LC Materials for Holographic Recording**

K.-T. Kuo, W.-C. Su

Nat. Changhua Univ. of Education, Taiwan

FLXp1 - 8 **Study of Polymer Stabilized Blue Phase LC on Flexible Substrate**

N. Endo, T. Matsumoto, H. Kikuchi[*]*, M. Kimura*

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

FLXp1 - 9 **Fabrication of Conductive Electrode on Flexible Substrate Using Ag Nanoparticle Ink by Transfer Printing Method**

J.-C. Choi, J.-S. Park, G. T. Park, J.-H. Kim, M.-K. Park, I. Mahmud, J.-H. Bae, H.-R. Kim

Kyungpook Nat. Univ., Korea

FLXp1 - 10 **Pretilt Angle and Surface Anchoring Energy of LCD Fabricated by Slit Coater**

T. Yamamoto, M. Kimura

Nagaoka Univ. of Tech., Japan

FLXp1 - 11 **A Non-Contact Resistance Measurement of Flexible Substrates for Repeating Bending Test by Using a Terahertz Time Domain Spectroscopy**

B.-J. Wen, T.-A. Liu, S.-W. Hsu

ITRI, Taiwan

FLXp1 - 12 **The Enhanced Thin Glass with an Ultra-High Bending Strength by a Laser Peeling Technology**

C.-H. Li, C.-J. Huang, K.-T. Chen, M.-C. Lin

ITRI, Taiwan

----- Lunch -----

13:30 - 14:45 **Snow Hall B**

FLX3: Advanced Printing Technologies
Special Topics of Interest on Printed Electronics

Chair: M. Ito, Toppan Printing, Japan
Co-Chair: H. Hirata, Toray Eng., Japan

FLX3 - 1: 13:30 ***Invited*** **Novel Roll-to-Roll Screen Printing Machine for Flexible Devices**

D. Kobayashi, N. Naoi[*], T. Suzuki[*], T. Sasaki[*], T. Furukawa[**]

Tokai Shoji, Japan
[*]Tokai Seiki, Japan
[**]Yamagata Univ., Japan

FLX3 - 2: 13:55 ***Invited*** **Technologies for Fully Integrated Printed Displays**

N. Fruehauf, M. Strecker, D. Benzel, S. Hoehla, J. Remmele

Univ. of Stuttgart, Germany

FLX3 - 3: 14:20 ***Invited*** **Flexible Transparent Conductive Films Based on Metal Mesh Technology**

Z. Cui

Chinese Ac. of Sci., China

----- Break -----

15:15 - 16:25 **Snow Hall B**

FLX4: Printed TFT Technologies
Special Topics of Interest on Printed Electronics

Chair: Y. Uraoka, Nara Inst. of S&T, Japan
Co-Chair: T. Furukawa, Yamagata Univ., Japan

FLX4 - 1: 15:15 ***Invited*** **Fully Printed Flexible TFT Array for Electronic Paper**

M. Ito, H. Chujo, K. Murata, M. Nishizawa, N. Ikeda, K. Hatta, M. Yokoo, R. Matsubara, O. Kina, S. Akao, T. Yamamoto, M. Takei, M. Kumagai, M. Ishizaki, K. Morosawa, M. Matsumura

Toppan Printing, Japan

FLX4 - 2: 15:40 ***Invited*** **Fully-Printed Organic TFTs and Circuits on Ultra-Flexible Substrates**

K. Fukuda, Y. Takeda, S. Tokito

Yamagata Univ., Japan

FLX4 - 3 16:05 **Flexible Electronics on Backmolded Plastic Foils**

P. Gaucci, N. Fruehauf, A. Ilchmann, B. Polzinger*, W. Eberhardt*, H. Kueck**

Univ. of Stuttgart, Germany
**HSG-IMAT, Germany*

Author Interviews and Demonstrations
18:30 – 19:30

Friday, December 5

10:45 - 11:50 **Snow Hall A**

FLX5: Flexible Substrates

Chair: T. Shiro, Teijin, Japan
Co-Chair: T. Eguchi, Sumitomo Bakelite, Japan

FLX5 - 1: 10:45 ***Invited*** **Flexible Paper Electronics Based on Cellulose Nanofiber Paper**

H. Koga, M. Nogi, K. Suganuma

Osaka Univ., Japan

FLX5 - 2 11:10 **Resent Approach to High Throughput Barrier Coating on Plastic Substrate**

T. Okimoto, T. Segawa, H. Tamagaki

Kobe Steel, Japan

FLX5 - 3 11:30 **Development of Transparent Cellulose Nano Fiber Film for Flexible Displays**

G. Banzashi, H. Fushimi, S. Iwai, M. Tsunoda, E. Mikami

Oji Holdings, Japan

----- Lunch -----

13:30 - 14:35 **Snow Hall A**

FLX6/FMC6: Flexible Materials and Devices

Chair: Y. Mishima, FUJIFILM, Japan
Co-Chair: T. Tomono, Toppan Printing, Japan

FLX6/FMC6 - 1: 13:30 ***Invited*** **Flexible Substrates and Alternative Electrodes of ITO for OLED Lighting**
M. Koden, H. Kobayashi, T. Moriya, N. Kawamura, T. Furukawa, H. Nakada
Yamagata Univ., Japan

FLX6/FMC6 - 2 13:55 **An Analysis Method of Shock Test for Flexible Displays by Using an Image Luminance Measurement Device**
J.-M. Hsu, S.-W. Hsu, B.-J. Wen, T.-Y. Chung
ITRI, Taiwan

FLX6/FMC6 - 3 14:15 **Plastic Substrate Technology for Flexible LCD**
Z.-H. Chen, T.-H. Huang, J.-K. Lu, N. Sugiura
AU Optronics, Taiwan

Author Interviews and Demonstrations
16:45 – 17:45

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 3

14:00 - 14:05 **Room 302 B**

Opening

Opening Remarks
14:00

N. Hashimoto, Citizen Holdings, Japan

14:05 - 15:30 **Room 302 B**

INP1: Touch Panel (1)

Chair: H.-S. Koo, Minghsin Univ. of S&T, Taiwan
Co-Chair: K. Nakatani, Touchpanel Labs., Japan

INP1 - 1: ***Invited*** **Technological Development of Touch Panel**
14:05 **Industry in Taiwan**

H.-S. Koo, M. Chen

Minghsin Univ. of S&T, Taiwan

INP1 - 2 **New Al-Based Metal Mesh Electrode for a Touch**
14:30 **Screen Panel**

M. Ochi, Y. Shida, H. Goto, T. Kugimiya, K. Moriyoshi[*]

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

INP1 - 3 **Low Reflectance Metal Layers for New Touch Panel**
14:50 **Solutions**

J. L. Grillmayer, H. C. Ko, M. Bender[*], K. Witting[*]

Appl. Materials, Taiwan
[*]Appl. Materials, Germany

INP1 - 4 **A Novel Metal Mesh Single Layer Touch Sensor**
15:10 **Design to Achieve Preeminent Touch and Visual Performance**

R. Fu, J. Qiu, J. Zhang, C. Ye, Y. Lin, C. Lee, C. Luo, A. Lien

Shenzhen China Star Optoelect. Tech., China

----- Break -----

15:45 - 17:15 **Room 302 B**

INP2: Touch Panel (2) and Haptics

Chair: T. Hoshi, Nagoya Inst. of Tech., Japan
Co-Chair: H. Haga, NLT Techs., Japan

INP2 - 1: 15:45 ***Invited*** **Electrostatic Tactile Display for Stimulus Localization**

H. Haga, K. Yoshinaga, J. Yanase, D. Sugimoto, K. Takatori, H. Asada

NLT Techs., Japan

INP2 - 2: 16:10 ***Invited*** **Noncontact Tactile Display Using Airborne Ultrasound**

T. Hoshi

Nagoya Inst. of Tech., Japan

INP2 - 3 16:35 **Touchless Architecture for Small and Medium Size Panel Application**

D.-C. Yu, J.-S. Liao, H.-H. Chen, H.-M. Su, W.-T. Tseng

Chunghwa Picture Tubes, Taiwan

INP2 - 4 16:55 **A Novel Embedded Touch Display with Integrated Chip Solution**

Y.-C. Li, C.-C. Chang, W.-J. Yang, C.-Y. Hsu, H.-H. Chen, H.-M. Su, W.-T. Tseng

Chunghwa Picture Tubes, Taiwan

Author Interviews and Demonstrations
17:15 – 18:15

Thursday, December 4

9:00 - 12:00 **Exhibition Hall B**

Poster INPp1: Touch Panel

INPp1 - 1 **Transparent Conductive Metal Structure Electrodes with Electrospun Nanofiber Templates**

H. Yoo, W. Hwang, H. Chae

Sungkyunkwan Univ., Korea

INPp1 - 2 **Invisible Patterned Method for Silver Nano-Wires Conductive Film**

Y.-P. Chang, M.-H. Yang, W.-T. Chen, C.-Y. Chiu, Y.-Z. Lee

ITRI, Taiwan

INPp1 - 3 **Reduced Non-Uniformity Moiré in Metal Mesh Touch Display Using View Angle Compensation**

C. Y. Chen, J. L. Chen, S. Y. Huang
General Interface Solution, Taiwan

INPp1 - 4 **Capacitive Touch Sensing Circuit on Flexible Substrate Using Back-Channel-Etch a-IGZO TFTs**

Y. Chen, D. Geng, J. Jang
Kyung Hee Univ., Korea

----- Lunch -----

13:30 - 14:20 **Room 301**

INP3: AR Interactive Systems

Special Topics of Interest on Augmented Reality and Virtual Reality

Chair: N. Hashimoto, Citizen Holdings, Japan
Co-Chair: N. Balram, Ricoh Innovations, USA

INP3 - 1: 13:30 ***Invited*** **System Design Considerations for Personal Light Field Displays for the Mobile Information Gateway**

N. Balram, W. Wu, I. Tosic, K. Berkner
Ricoh Innovations, USA

INP3 - 2: 13:55 ***Invited*** **Further Analysis of the R-V Dynamics Illusion on Sense of Weight**

S. Hashiguchi, Y. Kataoka, F. Shibata, A. Kimura
Ritsumeikan Univ., Japan

----- Break -----

15:15 - 16:30 **Room 302 A**

INP4: Sensor and Applications

Chair: M. Kimura, Ryukoku Univ., Japan
Co-Chair: J. Ohta, NAIST, Japan

INP4 - 1: 15:15 ***Invited*** **Sensor Applications Using Thin-Film Devices Derived from Display Technologies - Flatpanel Imager, Artificial Retina, Temperature Sensor, Magnetic-Field Sensor, etc. -**

M. Kimura, T. Matsuda, S. Noguchi, T. Sakamoto[*], T. Ozawa[**], K. Aoki[**], C.-C. Kuo[**]

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

INP4 - 2: 15:40 ***Invited*** **CMOS Image Sensor Technologies in Biomedical Applications**

J. Ohta

Nara Inst. of S&T, Japan

INP4 - 3: 16:05 ***Invited*** **Next Generation Natural User Interface, Tobii Eye Tracking -Eye Experience-**

K. Hachisu

Tobii Tech., Japan

Author Interviews and Demonstrations
18:30 – 19:30

Supporting Organizations:
Human Interface Society
The Forum for Advancement of Stereoscopic Three Dimensional Image Technology and Arts
Holographic Display Artists and Engineers Club, The Japan Society of Applied Physics
Technical Group on Information Sensing Technologies, ITE

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

Live demonstrations of emerging information display technologies

Thursday, December 4, 2014
Friday, December 5, 2014
In the afternoon
Exhibition Hall B

The 50th Anniversary Speech of PDPs "Summing Up of the PDP History and a Peek at Plasma Technologies Beyond Displays" (FED4 – 1)

Friday, December 5, 2014
15:15 - 15:55
Room 302B
See page 65 for detail

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	M. Inoue	Apple
	K. Ishikawa	Tokyo Inst. of Tech.
	A. Kubono	Shizuoka Univ.
	K. Miyachi	Sharp
	H. Nakata	DIC
	M. Nishikawa	JSR
	T. Nose	Akita Pref. Univ.
	H. Okada	Univ. of Toyama
	M. Ozaki	Osaka Univ.
	M. Suzuki	Merck
	T. Takahashi	Kogakuin Univ.
	S. Takanori	JNC Petrochem.

Workshop on Active Matrix Displays

Workshop Chair:	Y. Fujisaki	NHK
Program Chair:	H. Kumomi	Tokyo Inst. of Tech.
Program Vice-Chair:	M. Inoue	Huawei Techs. Japan
General Secretary:	H. Minemawari	AIST
Program Committee:	A. C. Arias	Univ. of California, Berkeley
	K. Azuma	Shimadzu
	E. Fortunato	New Univ. of Lisbon
	H. Hamada	Kinki Univ.
	M. Hiramatsu	Japan Display
	S. Horita	JAIST

	H. J. Kim	Yonsei Univ.
	M. Kimura	Ryukoku Univ.
	N. Morosawa	Sony
	T. Noguchi	Univ. of the Ryukyus
	T. Ozawa	AU Optronics
	M. Shibazaki	Innolux
	K. Suga	Sharp
	K. Takatori	NLT Techs.
	Y.-H. Yeh	ITRI

Workshop on FPD Manufacturing, Materials and Components

Workshop Chair:	T. Miyashita	Tohoku Inst. of Tech.
Program Chair:	T. Tomono	Toppan Printing
General Secretary:	R. Yamaguchi	Akita Univ.
Program Vice-Chair:	M. Shinohara	Omron
Program Committee:	I. Amimori	A51 Tech
	T. Arikado	Tokyo Electron
	K. Dantani	ATMI Japan
	A. Fujita	JNC
	Y. Iimura	Tokyo Univ. of A&T
	Y. Inoue	Corning Holding Japan
	K. Käläntär	Global Optical Solutions
	T. Katoh	ZEON
	C. C. Lee	ITRI
	D. Matsuura	Dai Nippon Printing
	T. Mori	Nitto Denko
	Y. Murata	ULVAC
	S. Namekawa	Nippon Steel & Sumikin Chemical
	T. Nonaka	AZ Elec. Materials
	Y. Saitoh	FUJIFILM
	H. Sakurai	Asahi Glass
	S. Takahashi	Sumitomo Bakelite
	T. Takeda	Nagase ChemteX
	Y. Ukai	UDDI
	T. Unate	UNATE
	Y. Yang	Japan Display

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.
	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

Workshop Chair:	H. Mimura	Shizuoka Univ.

Program Chair:	H. Shimawaki	Hachinohe Inst.of Tech.
General Secretary:	M. Nanba	NHK
Program Committee:	Y. Gotoh	Kyoto Univ.
	J. Ishikawa	Chubu Univ.
	H. Kajiyama	Tokushima Bunri Univ.
	S. Mikoshiba	Univ. of Electro-Commun.
	M. Nagao	AIST
	M. Nakamoto	Shizuoka Univ.
	S. Okuda	Okuda
	T. Shiga	Univ. of Electro-Commun.
	M. Takai	Osaka Univ.
	F. Wakaya	Osaka Univ.

Workshop on OLED Displays and Related Technologies

Workshop Chair:	T. Wakimoto	Merck
Program Chair:	K. Monzen	Nissan Chem. Inds.
Program Vice-Chair:	T. Ikuta	JNC Petrochem.
General Secretary:	T. Uchida	Tokyo Polytechnic Univ.
Program Committee:	C. Adachi	Kyushu Univ.
	S. Aratani	Hitachi
	S. Enomoto	Toshiba Lighting & Tech.
	T. Fukuda	Saitama Univ.
	R. Hattori	Kyushu Univ.
	T. Inoue	TDK Corporation
	Y. Kijima	Sony
	T. Komatsu	Panasonic
	H. Kuma	Idemitsu Kosan
	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

Workshop on 3D/Hyper-Realistic Displays and Systems

Workshop Chair:	S. Yano	Shimane Univ.
Program Chair:	M. Tsuchida	NTT
General Secretary:	K. Yamamoto	NICT
Program Committee:	T. Fujii	Nagoya Univ.
	T. Koike	Hosei Univ.
	T. Mishina	NHK
	J.-Y. Son	Konyang Univ.
	C.-H. Tsai	ITRI
	M. Tsuboi	NTT DoCoMo
	H. Yamamoto	Univ. of Utsunomiya

Workshop on Applied Vision and Human Factors

Workshop Chair:	T. Kurita	NHK Media Tech.
Program Chair:	K. Masaoka	NHK
General Secretary:	A. Yoshida	Sharp
Program Committee:	J. Bergquist	Nokia Corp.
	S. Clippingdale	NHK
	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.
	T. Nakatsue	Sony
	G. Ohashi	Shizuoka Univ.
	K. Sakamoto	Panasonic
	Y. Shimodaira	Shizuoka Univ.
	J. Someya	Mitsubishi Elec.
	T. Tamura	Tokyo Polytech. Univ.
	R. Yoshitake	Shibaura Inst. of Tech.

Workshop on Projection and Large-Area Displays and Their Components

Workshop Chair:	S. Ouchi	Hitachi
Program Chair:	K. Ohara	Texas Instr. Japan
Vice-Secretary:	O. Akimoto	Sony
Program Vice-Chair:	S. Shikama	Setsunan Univ.
General Secretary:	T. Suzuki	JVC KENWOOD
Program Committee:	Y. Asakura	Nittoh Kogaku
	K. Goto	Ushio
	H. Kikuchi	NHK
	H. Nakano	Barco
	H. Sugiura	Mitsubishi Elec.
	M. Takaso	Telepathy Japan
	C. Kusaka	Techno Sys. Res
	T. Hashizume	Seiko Epson
	S. Koike	

Workshop on Electronic Paper

Workshop Chair:	H. Arisawa	Fuji Xerox
Program Chair:	T. Fujisawa	DIC
Program Vice-Chair:	N. Kobayashi	Chiba Univ.
General Secretary:	Y. Toko	Stanley Elec.
Program Committee:	M. Higuchi	NIMS
	Y. Hotta	Ricoh
	S. Maeda	Tokai Univ.
	M. Omodani	Tokai Univ.
	N.-S. Roh	Samsung Display
	A. Suzuki	Chiba Univ.
	M. Tsuchiya	Innova Dynamics
	G. Zhou	South China Normal Univ.

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Workshop Chair:	M. Nakamoto	Shizuoka Univ.
Program Chair:	Y. Nakai	Toshiba
General Secretary:	T. Komoda	Panasonic
Program Committee:	T. Akinwande	MIT
	G. Barbastathis	MIT
	M. Esashi	Tohoku Univ.
	H. Fujita	Univ. of Tokyo
	J. Jang	Kyung Hee Univ.
	H. Kikuchi	NHK
	J. Kim	Univ. of Oxford
	K. Matsumoto	Olympus
	W. Milne	Univ. of Cambridge
	S. Sugiyama	Ritsumeikan Univ.
	H. Tuller	MIT
	S. Uchikoga	Toshiba
	J.-B. Yoon	KAIST
	Y. Yoshida	Mitsubishi Elec.

Workshop on Display Electronic Systems

Workshop Chair:	H. Okumura	Toshiba
Workshop Vice-Chair:	T. Yamamoto	NHK
Program Chair:	K. Makita	AIST
General Secretary:	S. Takamura	NTT
Program Committee:	R. Hattori	Kyushu Univ.
	T. Fujine	Sharp
	K. Kagawa	Shizuoka Univ.
	K. Käläntär	Global Optical Solutions
	L. Kerofsky	Sharp Labs. of America
	H.-S. Koo	Minghsin Univ. of S&T
	H. Nam	Kyung Hee Univ.
	O.-K. Kwon	Hanyang Univ.
	T. Mitasaki	NTT
	K. Morita	Nat. Traffic Safety & Environment Lab.
	A. Nagase	Mitsubishi Elec.
	H. Nitta	Japan Display
	S. Ono	Panasonic
	A. Sakaigawa	Japan Display
	K. Sekiya	Kanagawa Inst. of Tech.

Workshop on Flexible Electronics

Workshop Chair:	H. Fujikake	Tohoku Univ.
Program Chair:	T. Sekitani	Osaka Univ.
General Secretary:	H. Maeda	DNP
Program Committee:	K. Akamatsu	Sony
	T. Eguchi	Sumitomo Bakelite
	H. Endo	NEC HV
	M. Funahashi	Kagawa Univ.
	T. Furukawa	Yamagata Univ.
	H. Hirata	Toray Eng.
	M. Ito	Toppan Printing
	T. Kamata	AIST
	M. Kimura	Nagaoka Univ. of Tech.
	Y. Mishima	FUJIFILM
	A. Miyamoto	Panasonic
	M. Nakata	NHK
	T. Shiro	Teijin
	K. Takimiya	RIKEN
	T. Tomono	Toppan Printing
	K. Uemura	Nippon Steel & Sumitomo Metal
	Y. Uraoka	Nara Inst. of S&T

Workshop on Touch Panels and Input Technologies

Workshop Chair:	N. Hashimoto	Citizen Holdings
Program Chair:	T. Nakamura	Japan Display
General Secretary:	H. Haga	NLT Techs.
Program Committee:	I. Fujieda	Ritsumeikan Univ.
	K. Imoto	Toshiba
	M. Inoue	Huawei Technologies Japan
	K. Kagawa	Shizuoka Univ.
	H. Kato	Sharp
	F. Koo	Minghsin Univ. of S&T
	I. Mihara	Toshiba
	K. Nakatani	Touchpanel Labs.
	H. Noma	Ritsumeikan Univ.
	H. Okumura	Toshiba
	Y. Sasaki	Mitsubishi Elec.

	K. Yamazaki	Corning Holding Japan
	J. Watanabe	NTT

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	K. Makita	AIST
Program Committee:		
FMC	M. Shinohara	Omron
3D	M. Tsuchida	NTT
PRJ	O. Akimoto	Sony
DES	K. Makita	AIST
INP	N. Hashimoto	Citizen Holdings
VHF	A. Yoshida	Sharp
DES	H. Okumura	Toshiba

Special Topics of Interest on Lighting Technologies

Facilitator:	Y. Kijima	Sony
Program Committee		
FMC	M. Shinohara	Omron
PH	K. Hara	Shizuoka Univ.
OLED	T. Ikuta	JNC Petrochem.

Special Topics of Interest on Printed Electronics

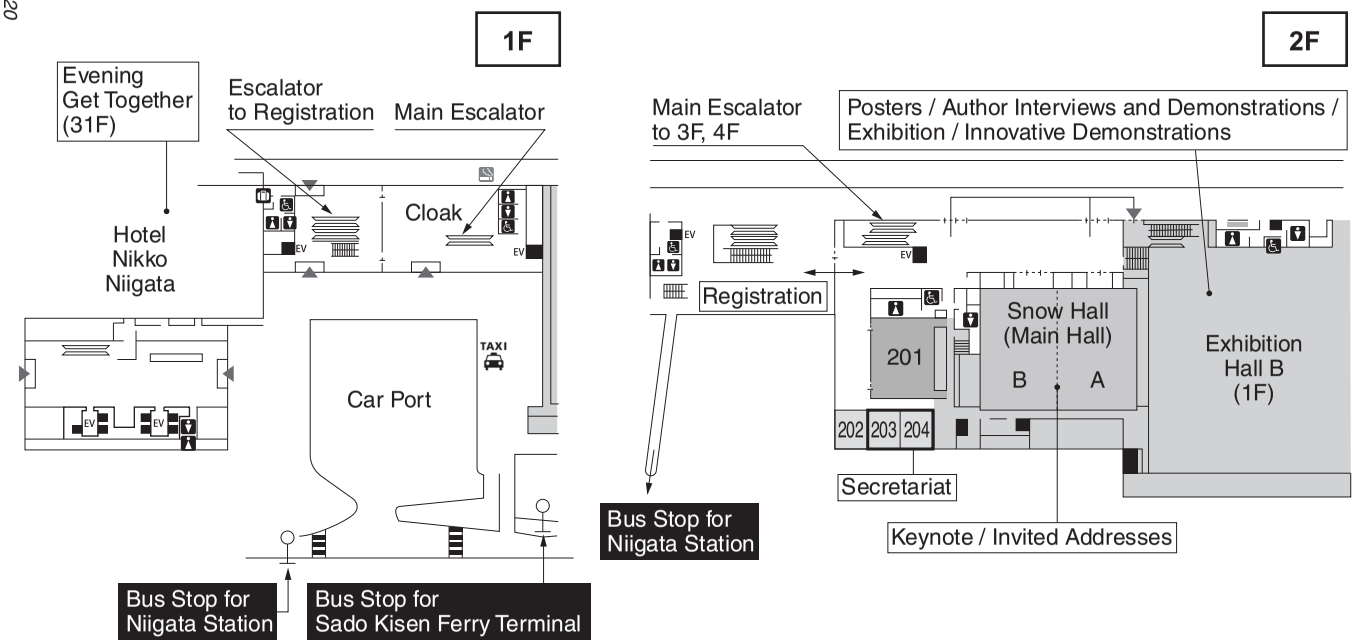
Facilitator:	H. Hirata	Toray Eng.
Program Committee:		
LCT	K. Ishikawa	Tokyo Inst. of Tech.
AMD	H. Minemawari	AIST
FMC	T. Tomono	Toppan Printing
OLED	K. Monzen	Nissan Chem. Inds.
DES	R. Hattori	Kyushu Univ.
FLX	H. Hirata	Toray Eng.

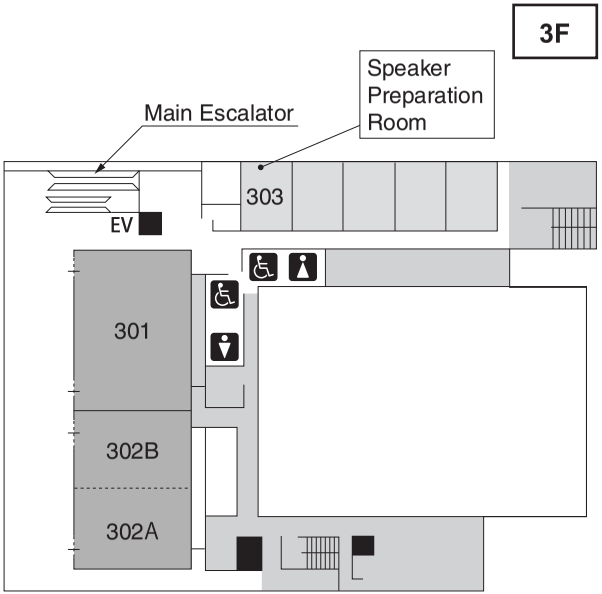
FINANCIAL SUPPORTING ORGANIZATIONS (as of August 6, 2014)

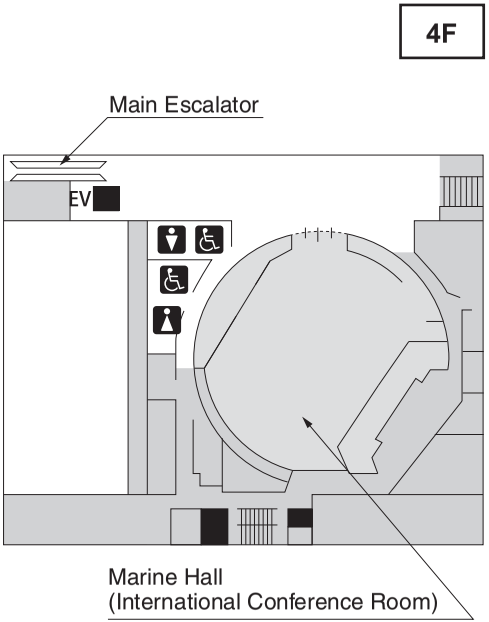
ADEKA CORPORATION
Japan Display Inc.
JSR Corporation
Nichia Corporation
Semiconductor Energy Laboratory Co., Ltd.
TOKYO ELECTRON LIMITED
ZEON CORPORATION

SUPPORTING MEMBERS (as of August 6, 2014)

EIZO Corporation
JAPAN BROADCASTING CORPORATION
JNC Corporation
Merck Ltd. Japan
NLT Technologies, Ltd.
Panasonic Corporation
Toshiba Corporation
ULVAC, Inc.


1F
Evening
Get Together
(31F)
Escalator
to Registration
Main Escalator
Cloak
Hotel
Nikko
Niigata
TAXI
Car Port
Bus Stop for
Niigata Station
Bus Stop for
Sado Kisen Ferry Terminal
2F
Main Escalator
to 3F, 4F
Posters / Author Interviews and Demonstrations /
Exhibition / Innovative Demonstrations
Registration
Snow Hall
(Main Hall)
B
A
201
Exhibition
Hall B
(1F)
202
203
204
Secretariat
Bus Stop for
Niigata Station
Keynote / Invited Addresses


3F
Speaker
Preparation
Room
Main Escalator
303
EV
301
302B
302A


4F
Main Escalator
EV
Marine Hall
(International Conference Room)

MEMO

MEMO

MEMO

IDW '14 Workshop Timetable

Date	2F Lobby	Snow Hall A	Snow Hall B	Marine Hall	Room 301	Room 302 A	Room 302 B	Room 201	Exhibition Hall B
Tue., Dec. 2	Registration 17:00 - 20:00	Evening Get-Together at Observation Deck (31F) in Hotel Nikko Niigata18:00 - 20:00							
Wednesday, December 3	Registration 8:00 - 18:00	Opening, Keynote & Invited Addresses 9:30 - 12:30							Exhibition 12:40 - 18:00
		Lunch							
		FLX1 (p.102) 14:00 - 15:40	OLED1 (p.67) 14:00 - 15:20	FMC1 (p.51) 14:00 - 15:20	LCT1 (p.38) 14:00 - 15:05	EP1 (p.90) 14:00 - 14:50	INP1 (p.108) 14:00 - 15:30	PRJ1 (p.86) 14:00 - 15:30	AMDp 14:00 - 17:00
		Break							
		FLX2 (p.103) 15:45 - 16:25	OLED2 (p.67) 15:45 - 16:45	FMC2 (p.51) 15:45 - 16:45	LCT2 (p.38) 15:45 - 17:10	EP2 (p.90) 15:45 - 17:00	INP2 (p.109) 15:45 - 17:15	PRJ2 (p.87) 15:45 - 17:15	
									Author Interviews & Demonstrations 17:15 - 18:15
		Reception at the Room "Continental" (4F) in Hotel Okura Niigata19:00 - 21:00							
Thursday, December 4	Registration 8:00 - 18:00	AMD1 (p.47) 9:00 - 10:15	OLED3 (p.68) 9:00 - 10:10	EP3† (p.91) 9:00 - 10:11	PRJ3 (p.87) 9:00 - 10:05	VHF1 (p.80) 9:00 - 10:10	DES1 (p.97) 9:00 - 10:35	MEET1 (p.92) 9:00 - 10:30	FMCp, PHp, 3Dp, FLXp, INPp 9:00 - 12:00
		Break							
		AMD2 (p.47) 10:45 - 12:20	OLED4 (p.69) 10:45 - 11:55	LCT3 (p.39) 10:45 - 11:55	PRJ4 (p.88) 10:45 - 11:50	VHF2 (p.80) 10:45 - 11:55	DES2 (p.97) 10:45 - 11:55	MEET2 (p.93) 10:45 - 12:45	
		Lunch							
		AMD3 (p.48) 13:30 - 14:55	FLX3 (p.105) 13:30 - 14:45	LCT4 (p.40) 13:30 - 14:35	INP3 (p.110) 13:30 - 14:20	3D1 (p.75) 13:30 - 15:00	PRJ5† (p.88) 13:30 - 14:42	MEET3 (p.94) 13:30 - 14:50	OLEDp, VHFp, EPp, DESp 13:30 - 16:30
		Break							
		AMD4 (p.49) 15:15 - 16:20	FLX4 (p.105) 15:15 - 16:25	LCT5 (p.40) 15:15 - 16:20	3D2 (p.76) 15:15 - 16:30	INP4 (p.110) 15:15 - 16:30	PH1 (p.60) 15:15 - 16:25	MEET4 (p.94) 15:15 - 16:55	
		Break							
		AMD5 (p.49) 17:00 - 18:10	FMC3 (p.56) 17:00 - 18:00		3D3 (p.76) 17:00 - 18:40	VHF3 (p.82) 17:00 - 18:00	PH2 (p.61) 17:00 - 18:05	MEET5 (p.95) 17:00 - 18:40	
									Author Interviews & Demonstrations 18:30 - 19:30
Friday, December 5	Registration 8:00 - 13:00	OLED5 (p.73) 9:00 - 10:25	FMC4 (p.56) 9:00 - 10:00		3D4 (p.77) 9:00 - 10:20	PH3 (p.61) 9:00 - 10:25	FED1 (p.63) 9:00 - 10:35	VHF4 (p.83) 9:00 - 10:00	LCTp, PRJp 9:00 - 12:00
		Break							
		FLX5 (p.106) 10:45 - 11:50	FMC5 (p.57) 10:45 - 12:05		3D5 (p.78) 10:45 - 11:45		FED2 (p.64) 10:45 - 12:05	DES3/VHF5 (p.83/p.99) 10:45 - 12:15	
		Lunch							
		FLX6/FMC6 (p.57/p.107) 13:30 - 14:35			3D6 (p.78) 13:30 - 14:55	VHF6 (p.84) 13:30 - 14:30	FED3 (p.65) 13:30 - 14:50	DES4 (p.100) 13:30 - 14:30	
		Break							
					3D7/VHF7 (p.79/p.85) 15:15 - 16:20		FED4 (p.65) 15:15 - 16:35	DES5 (p.101) 15:15 - 16:15	
									Author Interviews & Demonstrations 16:45 - 17:45

†Including Short Presentations

Exhibition Hall B: Exhibition 10:00 - 18:00 (Thursday, December 4); Exhibition 10:00 - 14:00 (Friday, December 5); Innovative Demonstration Session 16:45 - 19:30 (Thursday, December 4); Innovative Demonstration Session 12:30 - 15:15 (Friday, December 5)

IDW '14 Special Topics of Interest Navigator

	Fri., Dec. 5	Thu., Dec. 4							Wed., Dec. 3
	AM	PM				AM			PM
Oxide-Semiconductor TFT				AMD4: Higher Performance Oxide TFT 15:15 - 16:20 (p.26)	AMD3: Stability of Oxide TFT 13:30 - 14:55 (p.26)	AMD2: Physics of Oxide Semiconductors 10:45 - 12:20 (p.25)	AMD1: High Resolution Displays Using LTPS & Oxide TFTs 9:00 - 10:15 (p.24)		
Snow Hall A									AMDp1 : Poster 14:00 - 17:00 (p.22)
Exhibition Hall B						FMCp4: Poster 9:00 - 12:00 (p.24)			
Augmented Reality and Virtual Reality									
Snow Hall B	FMC4: Augmented Reality & Virtual Reality 9:00 - 10:00 (p.30)			3D2: Interactive 3D Display Technology 15:15 - 16:30 (p.29)	INP3: AR Interactive Systems 13:30 - 14:20 (p.29)	PRJ4: Wearable Display 10:45 - 11:50 (p.28)			
Room 301		3D3: Omnidirectional Hyper-Realistic System 17:00 - 18:40 (p.30)					DES1: Display Technologies in Augmented Reality 9:00 - 10:35 (p.28)		
Room 302 B									
Room 201	DES3/VHF5: System Design & Evaluation in Augmented Reality 10:45 - 12:15 (p.31)								
Lighting Technologies									
Snow Hall B	FMC5: Lighting Technologies 10:45 - 12:05 (p.34)								
Room 302 A	PH3: Phosphors for Lighting Application 9:00 - 10:25 (p.33)								
Exhibition Hall B			OLEDp1: Poster 13:30 - 16:30 (p.33)			FMCp3, PHp2: Poster 9:00 - 12:00 (p.32)			
Printed Electronics									
Snow Hall A		AMD5: Printed Electronics 17:00 - 18:10 (p.37)			FLX3: Advanced Printing Technologies 13:30 - 14:45 (p.36)	OLED4: OLED Materials (1) 10:45 - 11:55 (p.35)	OLED3: OLED Process Technologies 9:00 - 10:10 (p.35)		
Snow Hall B				FLX4: Printed TFT Technologies 15:15 - 16:25 (p.37)					
Exhibition Hall B			OLEDp2: Poster 13:30 - 16:30 (p.36)						

IDW '14 Session Navigator

	Wednesday, December 3			Thursday, December 4						Friday, December 5					
	PM		17:15-18:15	AM		PM			18:30-19:30	AM		PM			16:45-17:45
Active-Matrix Displays	Exhibition Hall B			Snow Hall A					Exhibition Hall B						
	Posters			High Resolution Displays Using LTPS & Oxide TFTs	Physics of Oxide Semiconductors	Stability of Oxide TFT	Higher Performance Oxide TFT	Printed Electronics	A.I.						
Display Electronic Systems				Room 302 B		Exhibition Hall B			Exhibition Hall B		Room 201				Exhibition Hall B
				Display Technologies in Augmented Reality	Image Processing	Posters			A.I.		System Design & Evaluation in Augmented Reality*	Display Driving Technologies	Display Interface & Driving Technologies		A.I.
Emissive Technologies	Room 201			Exhibition Hall B			Room 302 B		Exhibition Hall B	Room 302 B					Exhibition Hall B
	Solid-State Light Source Technologies for Projector			Posters			Phosphor for General	Phosphor Applications	A.I.	Novel Devices & Applications	Fabrication Processes & New Materials	FE Mechanisms & PDP Protective Layers	Summing Up of PDP History		A.I.
										Room 302 A	Snow Hall B				
										Phosphors for Lighting Application	Lighting Technologies				
e-Paper	Room 302 A		Exhibition Hall B	Marine Hall		Exhibition Hall B			Exhibition Hall B						
	Electrophoretic Displays	Various Technologies for e-Paper	A.I.	Chromic Displays		Posters			A.I.						
Flexible Electronics	Snow Hall A		Exhibition Hall B	Exhibition Hall B		Snow Hall B			Exhibition Hall B		Snow Hall A				Exhibition Hall B
	Flexible Backplane	Flexible Displays & Devices	A.I.	Posters		Advanced Printing Technologies	Printed TFT Technologies		A.I.		Flexible Substrates	Flexible Materials & Devices*			A.I.
Image Quality Evaluation & Human Factor				Room 302 A		Exhibition Hall B		Room 302 A	Exhibition Hall B	Room 201		Room 302 A	Room 301		Exhibition Hall B
				Optical Measurements	Color & OLEDs	Posters		Moving Image Quality	A.I.	Display Legibility	System Design & Evaluation in Augmented Reality*	Mobile Human Factors & 'Kansei' Evaluation	Visual Perception for 3D System*		A.I.
Liquid-Crystal Technologies	Room 301		Exhibition Hall B		Marine Hall				Exhibition Hall B	Exhibition Hall B					
	Fast Switching LCD	Novel Optics for LCD	A.I.		Photo Alignment	LC Materials	LC Evaluation		A.I.	Posters					
Manufacturing, Process & Equipment	Marine Hall		Exhibition Hall B	Exhibition Hall B											
	Manufacturing Technologies		A.I.	Posters											
Materials & Components		Marine Hall	Exhibition Hall B	Exhibition Hall B				Snow Hall B	Exhibition Hall B	Snow Hall B		Snow Hall A			Exhibition Hall B
		Materials & Components	A.I.	Posters				Optical Films	A.I.	Augmented Reality & Virtual Reality	Lighting Technologies	Flexible Materials & Devices*			A.I.
MEMS & Nanotechnologies				Room 201					Exhibition Hall B						
				Emerging Quantum Dots & Nanotechnologies	Fundamental Components & Process Technologies	EL Quantum Dots Technologies	Novel Materials & Components	Nanotechnology Display & Imaging	A.I.						
Organic Light-Emitting Displays & Organic Devices	Snow Hall B		Exhibition Hall B	Snow Hall B		Exhibition Hall B			Exhibition Hall B	Snow Hall A					Exhibition Hall B
	Advanced OLED Technologies (1)	Advanced OLED Technologies (2)	A.I.	OLED Process Technologies	OLED Materials (1)	Posters			A.I.	OLED Materials (2)					A.I.
Projection & Large Area Displays	Room 201		Exhibition Hall B	Room 301		Room 302 B			Exhibition Hall B	Exhibition Hall B					
	Solid-State Light Source Technologies for Projector	Vehicle Display	A.I.	Projection Technologies	Wearable Display	Projection Applications			A.I.	Posters					
Touch & Interactive Technologies	Room 302 B		Exhibition Hall B	Exhibition Hall B		Room 301	Room 302 A		Exhibition Hall B						
	Touch Panel (1)	Touch Panel (2) & Haptics	A.I.	Posters		AR Interactive Systems	Sensor & Applications		A.I.						
3D/Hyper-Realistic Displays				Exhibition Hall B		Room 302 A	Room 301		Exhibition Hall B	Room 301					Exhibition Hall B
				Posters		Holography	Interactive 3D Display Technology	Omnidirectional Hyper-Realistic System	A.I.	3D/Hyper-Realistic Displays (1)	3D/Hyper-Realistic Displays (2)	Optical Devices for 3D System	Visual Perception for 3D System*		A.I.

A.I. Author Interviews & Demonstrations
* Joint Session

IDW '14 The 21st International Display Workshops

December 3-5, 2014 TOKI MESSE Niigata Convention Center, Niigata, Japan

Registration

(1) Registration Fees

The registration fee includes admission to the conference and a CD-ROM of the proceedings. In addition, a printed Final Program including abstracts of each paper will be provided at the conference site. No refunds will be made on and after November 1, 2014.

	ITE/SID/ ASO*1 Member*2	Non-Member*3	Student*4	Life Member of ITE/SID
Until October 31	¥35,000	¥45,000	¥ 8,000	¥ 8,000
On and After November 1	¥45,000	¥55,000	¥10,000	¥10,000

*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.

*2 Individual member

*3 If you intend to join either ITE or SID, the one year membership fee will be subsidized by the IDW '14 Committee.

*4 Photocopy of your student ID is required.

(2) Reception Fee

Until October 31	¥8,000
On and After November 1	¥10,000

One free ticket will be provided to each invited speaker.

(3) Additional Proceedings (CD-ROM)

At the Conference Site	¥8,000
Airmail after the Conference	¥12,000
Domestic Mail after the Conference	¥10,000

Registration

(1) e-Registration (Deadline: November 21, 2014)
Access http://www.idw.or.jp/regist.html

(2) Mail or Fax (Deadline: November 21, 2014)
Registration Form is available via http://www.idw.or.jp/regist.html

(3) On-site

Early-Bird Fee: until Oct. 31
Deadline of Advance Registration: Nov. 21

Accommodations

JTB Kanto 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

Area	No. in map (p18)	Hotel Name	Phone	Rates (per person/ per night)		Internet Access	
				Single	Twin	Charge	Wired or Wireless LAN
Bandai Area	1	Hotel Nikko Niigata	+81-25-240-1888	¥9,500	¥9,000	Free	Wireless
	2	ANA Crowne Plaza Niigata	+81-25-245-3333	¥12,500	¥8,700	Free	Both
	3	Bandai Silver Hotel	+81-25-243-3711	¥8,000	¥7,500	Free	Both
Furumachi Area	4	Hotel Okura Niigata	+81-25-224-6111	¥8,500	¥8,000	Free	Wireless
	5	Niigata Grand Hotel	+81-25-228-6111	¥8,000	¥7,500	Free	Both
Niigata Eki Mae Area	6	Niigata Tokyu Inn	+81-25-243-0109	¥7,500	¥6,500	Free	Both
	7	Hotel Sunroute Niigata	+81-25-246-6161	¥7,500	¥6,500	Free	Both
	8	Niigata Toei Hotel	+81-25-244-7101	¥6,500	¥6,000	Free	Both
	9	Court Hotel Niigata	+81-25-247-0505	¥6,000		Free	Both
	10	Comfort Hotel Niigata	+81-25-242-0611	¥6,000		Free	Both

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

Deadline of Hotel Reservation: Nov. 14

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IDW '14
ADVANCE PROGRAM

http://www.idw.or.jp/