



IDW/AD'16

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



Advance Program

*Fukuoka International Congress Center
Fukuoka, Japan
December 7 (Wed) – 9 (Fri), 2016*

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PROGRAM HIGHLIGHTS

The 23rd International Display Workshops in conjunction with Asia Display 2016 will be held as IDW/AD '16 for encouraging aggressive research and development of display technologies throughout the world and especially in the Asian region. IDW/AD '16 focuses on the following five special topics and one topical session, which are extremely timely, as well as fourteen active workshops.

Special Topics of Interest on

- Oxide-Semiconductor TFT
- AR/VR and Hyper Reality
- Lighting and Quantum Dot Technologies
- Printed Electronics
- Automotive Display

Topical Session on

- User Experience and Cognitive Engineering

Workshops on

- LC Science and Technologies
- Active Matrix Displays
- FPD Manufacturing, Materials and Components
- Inorganic Emissive Display and Phosphors
- 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 8th International Conference on 3D Systems and Applications

The three-day conference will feature 425 papers, including 3 Keynote addresses, 100 invited presentations, 143 oral presentations, and 179 poster presentations. Following plenary session of Keynote addresses in the Wednesday morning, presentations will begin and continue in 8 parallel oral sessions through Friday. Poster sessions and author interviews and demonstrations will enable participants to discuss topics in detail. Exhibits by universities and display industry-related businesses will also be featured from Wednesday to Friday in parallel with workshops. IDW/AD '16 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)

Currently, oxide semiconductor TFTs have been hugely successful in the industrial fields of flat panel displays. However, they are not yet a completed technology and we can find a lot of improvements day by day. In this IDW, not only the champion of the oxide semiconductor, IGZO, but also other finalists, including novel oxide materials, will be presented. New device structures and innovative deposition processes including solution processes will be also presented. By clarifying the operation mechanism, we can improve the performance stability. High resolution and large displays as well as challenging applications will be proposed. "Oxide semiconductors are the jewelry box in the information display world !" Don't miss it!

Special Topics of Interest on AR/VR and Hyper 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.

There are several sessions for wearable devices such as head-mounted-displays. PRJ-WS introduces researches on hardware issues, LCT-WS on the quality of LCD, and VHF-WS on human perception side of wearable devices. We also introduce research about AR systems. PRJ-WS and DES-WS co-organize a session for introducing Spatial AR, which uses projector (s) for AR, while 3D-WS and 3DSA-WS introduce hyper realistic display systems and audio/haptic displays. A session organized by INP-WS introduces user interaction techniques used in AR systems.

Five oral and poster papers plan to present their works at I-DEMO. Please enjoy the state-of-the-art AR research.

Special Topics of Interest on Lighting and Quantum Dot 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/AD '16 will be the presentations on development of a high efficiency laser spotlight illuminator with a novel patterned phosphor structure and technological improvements in the phosphors for displays and high CRI lamps (PH-WS), applications of quantum dot materials, high brightness LED, energy-saving displays and lighting devices (MEET-WS) and OLED lighting technologies with stacked white OLED, lighting applications and advanced LED technologies including perovskite and quantum dots (OLED-WS).

Special Topics of Interest on Printed Electronics (PE)

Printing technologies are opening up a new era of electronic devices with their high productivity, low cost, large scale and low environmental-burden fabrication advantages. Printed Electronics, a Special Topics of Interest from IDW '14, will cover all aspects concerning printed electronics from scientific and technological viewpoints. This year, three workshops (FMC, OLED, and FLX) will hold sessions including standardization activities on printed electronics (FMC), solution-processed TFTs and OLEDs (OLED), and alignment technologies for printing process (FLX).

Special Topics of Interest on Automotive Displays (AUTO)

Under situations where a variety of display technologies are introduced into the automobile fields, a session "Automotive Displays (AUTO)" is newly scheduled as one of the Special Topics of Interest (STI) in 2016. There are many presentations related to the automotive technology in the IDW spreading across the workshops such as 3D, VHF, PRJ, DES, LCT, and INP. AUTO shares common features of automobile use in them. Sixteen oral or poster presentations are scheduled in the AUTO. For examples, much research into Head-Up Displays (HUD) that deal with Augmented Reality (AR), or 3-D display will be presented. Furthermore a technology that utilizes the lighting as the communication means and a study of an electronic tactile display will be presented besides HUD technology. These novel studies will surely attract your attention regardless of your position as a designer or a user of automobiles.

Topical Session on User Experience and Cognitive Engineering (UXC)

Displays are now diversified in its size from large ones to mobile and wearable ones. Displays are presently used in various situations from the office to towns to automobiles. Display technologies need to pay attention to the world where they are used. IDW will launch a new topic focusing on user studies and interaction design proposals to explore future display environments. This topic will cover all aspects of social studies, cognitive science, and human-computer interaction that aim to open up new use scenarios of displays.

Workshop on LC Science and Technologies (LCT)

The LCT workshop covers topics from fundamental studies to recent developments in LCD technologies and LC materials. Of special note this year are the four invited presentations related to high resolution LCDs, photo alignment technologies, new LC materials for FFS-mode LCDs and flexible LCDs. Moreover, new LC technologies, such as LC lenses, and photovoltaic system will be presented.

Workshop on Active Matrix Displays (AMD)

The AMD workshop covers Si-TFT, oxide TFT, organic TFT, OLED, sensors, memories, and the other devices. Recent paper presentations tend to focus on oxide TFT, which are expected to play a role in applications for higher definition LC and OLED displays than 8K4K or 800 ppi. We highlight the oxide TFT as a special topic of interest (STI-OXT) with six dedicated sessions covering a wide area from materials, physics, devices, and processes to applications. Furthermore, we have prepared two sessions for organic, printed, and flexible electronics mainly based on organic semiconductors. We look forward to your participation!

Workshop on FPD Manufacturing, Materials and Components (FMC)

The FMC workshop covers recent developments and achievements in the field of flat panel display technologies, including display optics, materials, components, display panel manufacturing and measurements technologies. The oral presentations contain more than 24 papers of which 9 are invited papers. In addition, more than 10 posters will be presented. In the FMC sessions, papers related to optical polarizer films, holographic waveguide display, retro-reflector for aerial display, micro-structured films for wide viewing, liquid crystal for space-variant polarization, flexible surface light sources, thin-film coatings on large size ultra-thin glass for flexible devices, phase change materials for reflective displays, thin film organic photodiodes on CMOS, and textured LTPS film by a single scanning CLC will be presented. The FMC-WS is supporting FLX-WS and PE of special topics of interest, in which the recent trends in these fields will be presented.

Workshop on Inorganic Emissive Display and Phosphors (PH)

The PH workshop presents the latest achievements in devices and phosphors for inorganic emissive displays, general lighting and liquid-crystal backlighting. Invited talks will be presented on emerging technologies such as high quality nanomaterials, quantum dots and laser spotlight illuminator.

Workshop on OLED Displays and Related Technologies (OLED)

The OLED workshop covers all aspects of the science and technologies of OLED, QLED, OTFT and other organic devices, ranging from material research, basic device physics for display including backplane technologies and other applications. The oral and poster sessions will cover OLED device technologies including OLED lighting technologies (LIT), OLED evaluation technologies and materials. Recent progress such as OLED displays, advanced OLED lighting, organic TFT and thermally activated delayed fluorescent (TADF) materials etc. will be reported on at IDW/AD '16.

Workshop on 3D/Hyper-Realistic Displays and Systems (3D)

The 3D workshop focuses on recent progress in 3D and hyper-realistic displays and systems. It covers dual-/multi-view stereoscopic image, autostereoscopic display, 2D/3D image conversion, holography and holographic elements, integral photography, light field processing and analysis, volumetric images, aerial images, omni-directional images, immersive visualization system, depth and shape estimation, 3D scanner and printer, multi/hyper-spectral imaging, multi-color-primaries and hyperspectral display, crosstalk evaluation, visual depth and material

perception, image coding and transmission, standardization, new optical components, and more in the field of 3D/hyper-reality technologies. This year, the 3D workshop presents a lot of sessions in conjunction with 3DSA workshop to provide good opportunity for audiences 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 displays. We have five VHF oral sessions on Ergonomics for automotive applications, Display measurement and simulation, Human factors and applications, Visual comfort and motion sickness, Color vision and illumination, in addition to a VHF poster session. We also have a joint session with a 3D workshop on the theme of AR (Augmented Reality), a human factor session, and user experience and cognitive engineering session. Three invited talks will be given in the oral sessions, concerning LED Color targets Visual Effects of Concave Curved Displays, and Visually Induce Motion Sickness.

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

The PRJ workshop covers the latest wearable applications, vehicle display technologies, head lights, solid-state light sources, holograms, short throw optics etc., projection mapping, Augmented Reality (virtual reality), 3D measurement, standardization of wearable/new light sources and all the projection technologies. This year, our session will focus on head light, wearable-related technologies, laser light sources, projection devices, projection mapping and standardization. A new session on standardization of wearable/new light sources has also been added. There will be 23 presentations, 20-oral and 3-poster, including 6 invited presentations in total.

Workshop on Electronic Paper (EP)

The EP workshop focuses on current topics in electronic paper including rewritable paper and flexible displays. Newly developed e-Paper technologies are now eagerly sought for emerging applications such as e-Books, e-Notes, electronic shelf labels, signage, and IoT. Various novel technologies will be presented in the following 3 sessions; 1. electrophoretic displays (4 pigment full color, 3 pigment color, and multi color), 2. flexible technologies and e-Paper for IoT, and novel material technologies such as electrochromism.

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

The MEET workshop is unique in covering all aspects of MEMS, nanotechnologies and emerging technologies concerning future displays, imaging devices, and emerging electron devices. It seeks to broaden the horizon of display and imaging technologies into cutting-edge technologies. Research areas such as materials, basic physics and fabrication processes are included. Among all the MEMS and display conferences in the world, this is the only opportunity for MEMS and cutting-edge technology researchers to gather and discuss such devices. Authorities from top research institutions around the world in this field have been invited. Invited speakers are from the University of Cambridge, Ecole Polytechnique, CEA-LETI, Brunel University, Seoul National University, Kyung Hee University, South China Normal University, Fuzhou University, Southern University of Science and Technology, Nanoco Technologies, Nanosys, X-Celeprint, Merck and Tohoku University. Together with contributed papers with high-quality content, this workshop is aimed at participants who wish to open up new fields in displays, imaging devices and emerging devices.

Workshop on Display Electronic Systems (DES)

The DES workshop covers all aspects of display electronic systems in relation to video data processing, interface technologies, and cooperative

operations between display components such as cells and backlights and sensors. This year, we will have 23 papers including 9 invited talks and 10 poster presentations (excluding late-news). We will organize one special session to celebrate the 10th anniversary of DES, and three normal sessions related to spatial augmented reality, 3D displays and sensors, and high image quality technology are planned.

Workshop on Flexible Electronics (FLX)

The FLX workshop focuses on advanced technologies for flexible electronics including displays, wearable sensors, and IoT technologies, which are composed of a wide range of fields from material science to practical applications. The sessions cover all aspects of the hottest flexible devices and material technologies including new TFT fabrication technologies, flexible substrates, encapsulation, innovative printing processes, new printing machines and evaluation techniques.

Workshop on Touch Panels and Input Technologies (INP)

Interface technologies such as touch panels and interactive technologies are the stars of the session. AR/Interactive systems such as haptics and AR are special topics of INP. Computer vision and natural interface technologies are still important research topics of INP. This year, new topics will be presented: automotive application and force sensing are special topics. INP papers will open a new window in displays and interactive technologies, not only for devices but also for systems, making them essential viewing.

Workshop on The 8th International Conference on 3D Systems and Applications (3DSA)

3DSA (Three Dimensional Systems and Applications) workshop is an international conference on audio-visual 3D technologies, systems, applications and other hyper-realistic systems, such as 3D capturing and processing, 3D coding and transmission, 3D displays and systems, 3D contents and applications, holographic technology, human vision, augmented reality, virtual reality, immersive display systems, free viewpoint image systems, ultra-realistic audio systems, and interactive systems. It is organized by the Ultra Realistic Communication Forum (URCF) / National Institute of Information and Communications Technology (NICT) / The Virtual Reality Society of Japan (VRSJ) in Japan, 3D Interaction Display Alliance (3DIDA) / Industrial Technology Research Institute (ITRI) / Society for Information Display (SID) Taipei Chapter in Taiwan, and the Association of Realistic Media Industry (ARMI) / Electronics and Telecommunications Research Institute (ETRI) and Korean Society of Broadcast Engineers (KSBE) in Korea. This year, it is held in conjunction with IDW/AD '16 as 3DSA workshop in IDW/AD '16.

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/AD '16. The award winners will be announced on the IDW website and given a plaque after the conference.

I-DEMO (Innovative Demonstration Session)

I-DEMO will be held on December 8 at Multipurpose Hall (2F). IDW provides the opportunity for an interdisciplinary technical demonstration/discussion in a larger space, more preparation and demonstration time than in the "Author Interviews". Demonstration Award will be awarded to the demonstration that has the biggest impact on the audience.

Exhibition

The IDW/AD '16 Exhibition, which will be held from December 7 through December 9, covers materials, components, manufacturing and measuring equipment, software systems and other related products

for display devices. Please join in and enjoy discussions at exhibitors' booths (Lobby, 2F and 4F).

December 7 (Wed.) 12:40 – 18:00

December 8 (Thu.) 10:00 – 18:00

December 9 (Fri.) 10:00 – 14:00

I-DEMO (Innovative Demonstration Session)

Live demonstrations
of emerging information display technologies
by Oral and Poster Presenters

Thursday, Dec. 8, 2016

10:30-16:40

Multipurpose Hall (2F)

Fukuoka International Congress Center

3DSA 2016

The 8th International Conference on 3D Systems and Applications
Held in conjunction with IDW/AD '16

Fukuoka International Congress Center

December 7-9, 2016

See page 133 for details

Free admission with your IDW/AD '16 registration name tag

<http://www.3dsa.org/>

IDW Best Paper Award

IDW Outstanding Poster Paper Award

These awards will go to the most outstanding papers
selected from those presented at IDW/AD '16.

The 2016 award winners will be announced on the
IDW website: <http://www.idw.or.jp/award.html>

GENERAL INFORMATION

SPONSORSHIP

IDW/AD '16 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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Hakata-ku, Fukuoka-shi

Fukuoka, 812-0032, Japan

Phone: +81-92-262-4111 Fax: +81-92-262-4701

ON-SITE SECRETARIAT

Telephone and fax machines for IDW/AD '16 use will be temporarily set up in the secretariat room (Room 405) at Fukuoka International Congress Center (December 6-9). Phone/Fax: +81-92-282-8878

RECEPTION

A buffet style reception will be held on December 7 from 19:00 to 21:00 at the Grand Ball Room (2F) in ANA Crown Plaza Hotel. As the number of tickets is limited, you are urged to make an advance reservation through the registration website.

EVENING GET-TOGETHER WITH WINE

A get-together will be held on December 6 from 18:00 to 20:00 at RACONTER 1F in Fukuoka International Congress Center. 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 the arrival procedure at the conference site.

Registration Fees

The registration fee for IDW/AD '16 includes admission to the conference and a USB Flash Drive of the proceedings. Detailed information will be announced on the website.

	Until Oct. 28	On and After Oct. 29
Individual Member (ITE/SID/ASO*)	¥ 40,000	¥ 50,000
Non-Member**	¥ 50,000	¥ 60,000
Student***	¥ 13,000	¥ 15,000
Life Member of ITE/SID	¥ 13,000	¥ 15,000
Reception	¥ 8,000	¥ 10,000

*ASO: Academic Supporting Organizations
(See p.16 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/AD '16 committee.

***Photocopy of student ID is required.

Please note that the payment of reduced registration fee is accepted until October 28. The full fee will be charged for payments made on and after October 29. Also note that the number of reception tickets to register on site is limited.

Proceedings Data at the Conference Site

Proceeding data can be accessed from the web-server via the wireless network only in the Free Wi-Fi Area at the conference site.

Additional proceedings (USB Flash Drive)

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

Payment

Three ways are provided for registration.

(1) e-Registration

Access the following URL.

<http://www.idw.or.jp/regist.html>

e-Registration will be accepted until November 25, 2016.

(2) Mail or Fax Registration

Complete the registration form (download from the website) and send it to the secretariat shown below together with the proof of payment no later than November 25, 2016.

IDW/AD '16 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 6 (Tue.) 17:00 – 20:00

December 7 (Wed.) 8:00 – 18:00

December 8 (Thu.) 8:00 – 18:00

December 9 (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 28**, cancellation is accepted by writing to IDW/AD '16 Secretariat to obtain refunds for registration and reception. All bank services charges will be deducted from the refunds. Please note that refunds will not be made under the following conditions:

* Cancellations received on and after October 29

* No-shows

* Cancellations by presenters

* Cancellations by VISA invitation letter applicants who have already received a VISA invitation letter.

However, after IDW/AD '16 closes, a USB Flash Drive of the proceedings will be sent to the registrants who have paid the registration fees. If it becomes difficult to hold IDW/AD '16 due to the outbreak of infectious diseases and other unavoidable factors, we will substitute the IDW with the mail delivery of the IDW/AD '16 proceedings at a later date to all those who have registered and completed payment.

INQUIRIES

IDW/AD '16 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

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 Engineer of Japan
- The Institute of Electronics, Information and Communication Engineers (IEICE)
- The Institute of Image Electronics Engineers of Japan
- International Electrotechnical Commission
- The Japan Ergonomics Society
- The Japan Society of Applied Physics
- The Japanese Liquid Crystal Society
- The Optical Society of Japan
- The Society of Automotive Engineers of Japan
- The Society of Polymer Science, Japan
- The Virtual Reality Society of Japan
- Vision Society of Japan

FUNDS

- Fukuoka Convention Bureau
- JSPS KAKENHI Grant Number 16HP0304

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

IDW/AD '16 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, Dec. 6, 2016

Room 412

Fukuoka International Congress Center

Detailed information will be announced at

<http://www.sid-japan.org/>

TRAVEL INFORMATION

ACCOMMODATIONS

JTB Convention Support Center. will handle arrangements for your hotel reservations.

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

JTB Convention Support Center

Phone: +81-92-751-2102 Fax: +81-92-751-4098

Office Hours: 9:30-17:30 (Weekdays only)

E-mail: Travel_idw2016@kys.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 country. 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 ask the secretariat at least two months before the conference.

CLIMATE

The average temperature in Fukuoka during the period is around 12°C in the daytime and 4°C at night.

JAPAN RAILWAY PASSES

Japan Railway (JR) provides the following economical passes. They are the most economical and flexible rail passes to travel from around Osaka to Hakata (Sanyo-San'in Area Pass) and Kyushu area by Bullet Train and rail. They should be purchased before you leave your country. Please contact your travel agency. Visit following sites for the details.

(1) Sanyo-San'in Area Pass (Shin-Osaka⇄Hakata) :
http://www.westjr.co.jp/global/en/ticket/pass/sanyo_sanin/

(2) JR Kyusyu Pass (Northern Kyushu Area and All Kyushu Area) :
<https://www.jrkyushu.co.jp/english/railpass/railpass.jsp>

FUKUOKA

Fukuoka City (also known as “Hakata”) lies on the northern coast of Kyushu, the southernmost of the four main islands of Japan. The population of the city is approximately 1.5 million people, making it the 5th largest city in Japan.

Being the closest major city in Japan to the Korean Peninsula and China, Fukuoka has from ancient times been a gateway for economic and cultural exchanges with its Asian neighbors. On the basis of these historical and geographical links, the city is working on many levels to strengthen its relationships with the rest of Asia, towards the goal of becoming a “focal point for exchange in Asia”.

PLACES OF INTEREST

Dazaifu Tenmangu Shrine

Nishitetsu trains are available from Tenjin to Dazaifu Tenmangu (about 20 minutes by train and then 5 minutes on foot). Here, at the head shrine of all the Tenmangu Shrines in Japan, the god of learning, Michizane Sugawara, is worshipped. The plum tree to the right of the main building as you face it is called Tobiume (the flying plum tree), because it is said that the tree flew here to be with Michizane.

Kyushu National Museum

This museum is located a 5-minute walk from Dazaifu Tenmangu Shrine, and is Japan’s newest National Museum after Tokyo, Kyoto, and Nara. Based on the concept of “Understanding Japanese culture from an Asian viewpoint”, various valuable exhibits depict Japan’s blossoming relationships with other Asian countries over a long time.

Fukuoka City Museum

Covered with half-mirrored windows, this museum stands with the Fukuoka Tower rising behind it (about 15 minutes by bus from Hakata Station). There are 4 different exhibition rooms and a special exhibition room for visiting exhibitions. The Gold Seal, one of Japan’s national treasures, is exhibited in the Permanent Exhibition Room.

Uminonakamichi

Uminonakamichi is a peninsula connecting Shikanoshima Island in Higashi Ward to mainland Fukuoka. A large peninsula measuring about 8 km in length and about 2.5 km in width at its widest point, Uminonakamichi is a recreation area with a park in its central to north-western region. The JR Kashii Line and prefectural roads run parallel through Uminonakamichi, providing a popular scenic route. Those who prefer a boat ride can catch a ferry operated by Fukuoka City at the Bayside Place Hakata Futoh.

Nakasu-Tenjin Area

“Hakata” is famous for “Hakata Ramen”. One of the special features of nighttime Hakata is “Yatai (Street Stalls)”, street stalls that appear on the streets in the evening in Nakasu, Tenjin, and other areas. Yatai offer a range of hot tasty foods including Hakata Ramen, and a chance to rub shoulders with the locals.

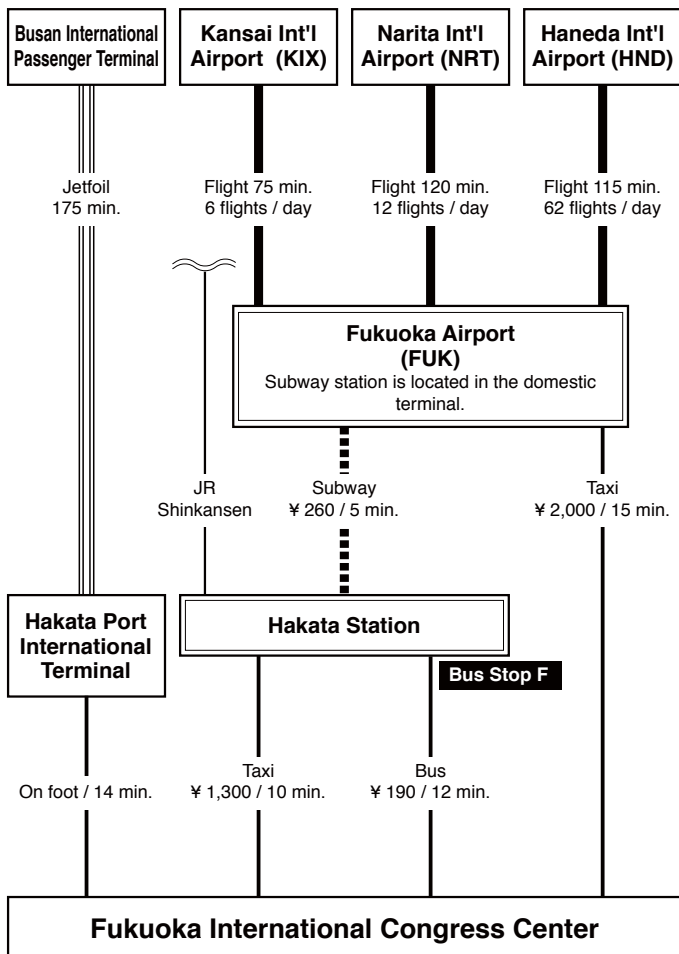
More information is available at the following websites:

<http://www.city.fukuoka.lg.jp/english/>

<http://www.welcome-fukuoka.or.jp/english/>

<https://yokanavi.com/en/>

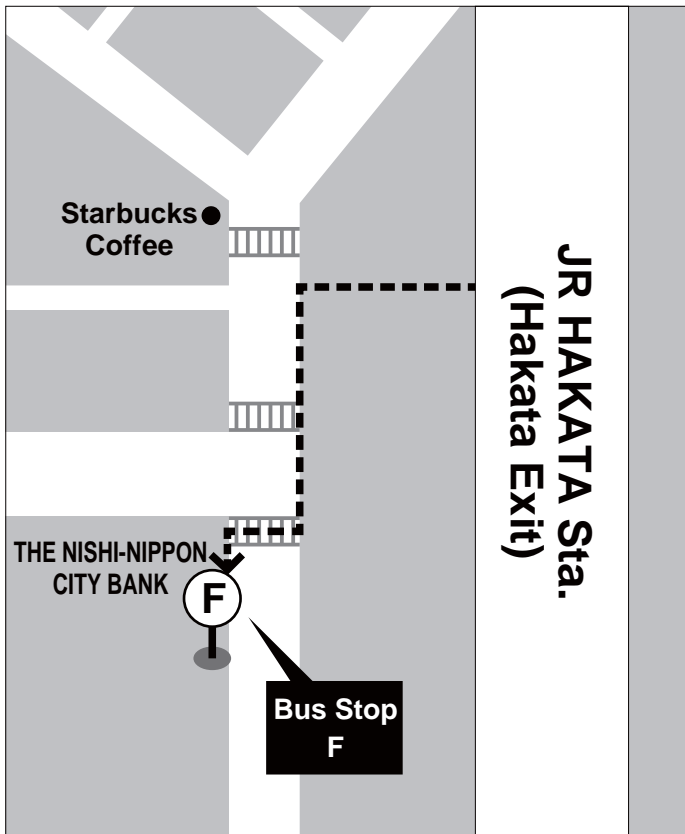
Access to Conference Site



Flight information on this page may be changed in December. Please confirm the details with each airline company.

(as of July 31, 2016)

Bus Stop at Hakata Station

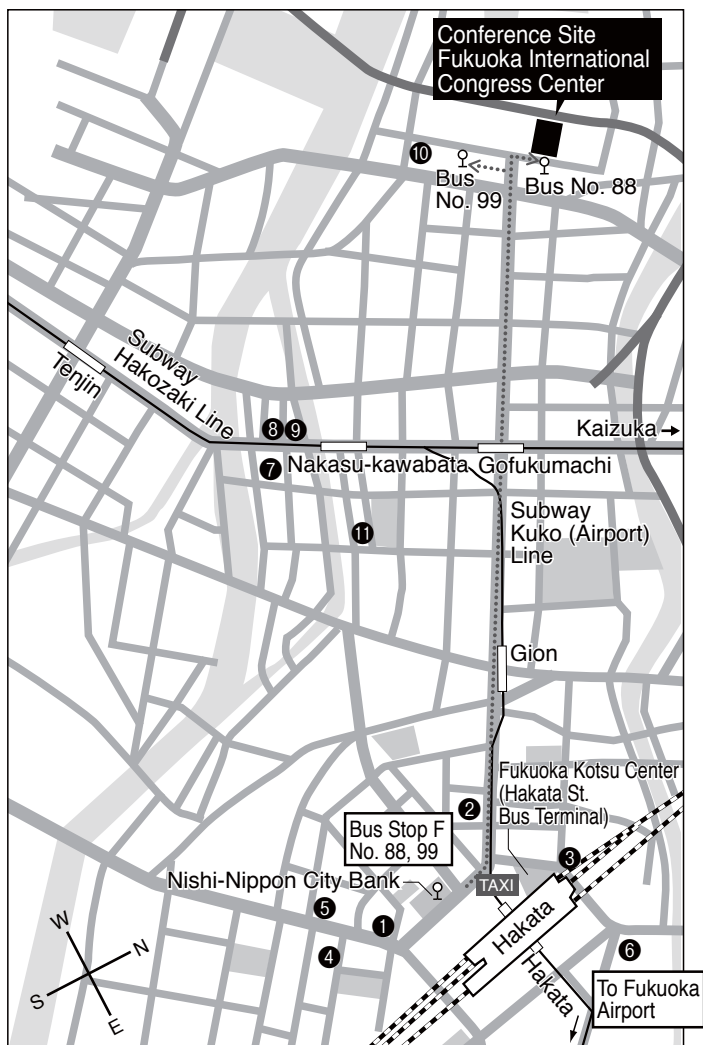


Bus Stop

In front of THE NISHI NIPPON CITY BANK, you will find Bus Stop F. Please take No.88 or 99 bus bound for Chuo Pier and get off at Kokusai Center / Sunpalace mae. For more information, please check the detail below.

<http://jik.nishitetsu.jp/menu?lang=en>

HOTEL MAP



- | | |
|---------------------------------|------------------------------|
| ① Ana Crowne Plaza Fukuoka | ⑦ HAKATA EXCEL HOTEL TOKYU |
| ② Hotel Nikko Fukuoka | ⑧ Imperial Palace CITY HOTEL |
| ③ NISHITETSU HOTEL CROOM HAKATA | ⑨ VESSEL INN HAKATA NAKASU |
| ④ YAOJI HAKATA HOTEL | ⑩ HOTEL HAKATA PLACE |
| ⑤ SUTTON HOTEL HAKATA CITY | ⑪ Reisenkaku Hotel Kawabata |
| ⑥ TOYO HOTEL | |

I-DEMO
(Innovative Demonstration Session)

Live demonstrations
of emerging information display technologies
by Oral and Poster Presenters
Thursday, Dec. 8, 2016
10:30-16:40
Multipurpose Hall (2F)
Fukuoka International Congress Center

IDW Best Paper Award
IDW Outstanding
Poster Paper Award

These awards will go to the most outstanding papers
selected from those presented at IDW/AD '16.
The 2016 award winners will be announced on the
IDW website: <http://www.idw.or.jp/award.html>

IDW '17

The 24th International Display Workshops
Dec. 6 – 8, 2017
Sendai International Center
Sendai, Japan
<http://www.idw.or.jp/>

Plenary Sessions

Wednesday, December 7

9:30 - 9:50

Main Hall

Opening

Master of Ceremony: M. Date, Executive Chair, IDW

Opening Remarks

9:30

M. Kimura, General Chair, IDW

Y.-S. Kim, President, SID

F. Takahata, President, ITE

R. Hattori, Program Chair, IDW

9:50 - 11:50

Main Hall

Keynote Addresses

Chair: R. Hattori, Program Chair, IDW

Co-Chair: M. Kimura, General Chair, IDW

Keynote Address - 1

9:50

Future Trends of Display Technology

C.-C. Lee

BOE Tech. Group, China

Keynote Address - 2

10:30

Breaking the Barriers to True Augmented Reality

C. Sandor

NAIST, Japan

Keynote Address - 3

11:10

Invention and Future History of OLED

C. W. Tang

Hong Kong Univ. of S&T, Hong Kong

Special Topics of Interest on Oxide-Semiconductor TFT

Wednesday, December 7

13:00 - 14:25

409

AMD1: Oxide TFT: High-Stability TFTs

Chair: J. Jang, Kyung Hee Univ., Korea

Co-Chair: H. Kumomi, Tokyo Tech, Japan

AMD1 - 1: *Invited* Importance of Oxygen- and Hydrogen-Related Defects to Develop New Amorphous Oxide Semiconductor Materials

13:00

*T. Kamiya, J. Kim, K. Ide, H. Kumomi, H. Hosono
Tokyo Tech, Japan*

AMD1 - 2 Electrical Characteristics of Si-Doped IGZO TFTs Fabricated Using Ion Implantation

13:25

*T. Goto, F. Imaizumi, S. Sugawa
Tohoku Univ., Japan*

AMD1 - 3 High Reliability Fluorine-Containing Polysilsesquioxane Passivation Layer for a-InGaZnO Thin-Film Transistors

13:45

N. Yoshida^{}, J. P. Bermundo^{**}, Y. Ishikawa^{**}, T. Nonaka^{*},
K. Taniguchi^{*}, Y. Uraoka^{**}*

^{}Merck Performance Materials Manufacturing G.K.,
Japan*

*^{**}NAIST, Japan*

AMD1 - 4 Achievement of High-Performance and Environmentally Stable TFTs by Introducing Hybrid-Phase Microstructure into InSnZnO Channels

14:05

S. Deng, R. Chen, G. Li, Z. Xia, K. Wang^{}, M. Zhang,
W. Zhou, M. Wong, H.-S. Kwok*

Hong Kong Univ. of S&T, Hong Kong

^{}Jinan Univ., China*

----- Break -----

Final Program

The final program of IDW/AD '16 will be available
on the website (<http://www.idw.or.jp/>)
from the middle of November

14:40 - 16:15

409

AMD2: Oxide TFT: High-Performance TFTs

Chair: T. Kamiya, Tokyo Tech, Japan
 Co-Chair: H. Hamada, Kinki Univ., Japan

AMD2 - 1: Invited High Yield, High Drain Current Oxide TFTs for Display Manufacturing

14:40

*J. Jang, J. K. Um, S. Lee
 Kyung Hee Univ., Korea*

AMD2 - 2: Invited Self-Aligned High Mobility Oxide TFT with SiN_x/Al₂O₃ Gate Insulator

15:05

*Y. Kim, G. Mun, K. Park, S.-H. K. Park
 KAIST, Korea*

AMD2 - 3: Invited Boosting the Field-Effect Mobility of Metal Oxide Thin Film Transistor by a Microstructure Modification

15:30

*J. K. Jeong, Y. Shin, S. T. Kim, I. J. Chung
 Hanyang Univ., Korea*

AMD2 - 4 Double-Channel Oxide Semiconductor Vertical TFTs with Mo Source/Drain Layer

15:55

*C.-S. H. Hwang, J. H. Choi, S. H. Cho, J.-H. Yang, J.-E. Pi,
 O.-S. Kwon, E.-S. Park, H.-O. Kim, S.-H. K. Park*
 ETRI, Korea
 KAIST, Korea

----- Break -----

16:20 - 17:50

409

AMD3: High-Resolution Displays

Chair: S.-H. K. Park, KAIST, Korea
 Co-Chair: K. Takatori, NLT Techs., Japan

AMD3 - 1: Invited Advanced OLED Display Technologies for Large-Size UHD OLED TVs

16:20

*H. J. Shin, S. Takasugi, H. S. Kim, C. H. Oh
 LG Display, Korea*

AMD3 - 2: Invited LCD with Ultra High Resolution and Super Fast Response Giving Super Reality to VR Application

16:45

*N. Noguchi, N. Ueda, K. Okada, K. Yamamoto,
 K. Yamamoto, S. Uchida, H. Yoshida, M. Murata
 Sharp, Japan*

AMD3 - 3 **12.5-in. Real RGB Pixel High 4K Resolution a-Si TFT-LCD with Advanced Design to Reduce the Loss of High-Frequency Data Signal**

17:10

*S.-Y. Wu, C.-C. Chang, H.-H. Chen, H.-M. Su, W.-Z. Zeng
Chunghwa Picture Tubes, Taiwan*

AMD3 - 4 **19.5-in. 4K LCD Fabricated with Novel LTPS Technology at Gen10 Line**

17:30

*N. Nodera, S. Ishida, T. Matsumoto, K. Kobayashi
Sakai Display Prods., Japan*

Author Interviews

17:50 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

Poster FMCp2: Oxide TFT Manufacturing

FMCp2 - 1 **Influence of Oxygen Ratio in Gate Bias Instability of Amorphous InGaZnO Thin Film Transistor**

*N. On, H. Seul, S. Kim, K. Lee, J. Jeong
Hanyang Univ., Korea*

FMCp2 - 2 **Structural Characteristics of Nickel-Zinc Oxide Nanostructures**

*Y. Yoshihara, K. H. Kim, Y. Abe, M. Kawamura, T. Kiba
Kitami Inst. of Tech., Japan*

FMCp2 - 3 **Soluble-Processed SiO₂ Gate Insulator Fabrication via Deep UV Curing for Amorphous Oxide Transistors**

*H. Seul, N. On, K. Lee, S. Kim, J. Jeong
Hanyang Univ., Korea*

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster AMDp1: Oxide TFTs

AMDp1 - 1 **AC Stress Stability Study with Different Channel Length in BCE IGZO TFT for 32-in. 8K4K GOA LCD**

*L.-Q. Shi, S.-J. Chen, Y.-F. Chou, L.-M. Zeng, T.-H. Wang,
W.-Y. Li, X.-W. Lv, R.-L. Chen, C.-W. Liao, S.-M. Ge,
M. Wang, C. K. Zhang, C.-Y. Chiu, X. Liu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China*

- AMDp1 - 2 Bias and Temperature Reliability of Amorphous Indium Tin Zinc Oxide Thin Film Transistor on SiO₂, SiN_xGate Dielectric**
S. Kim, B. Choi
Sungkyunkwan Univ., Korea
- AMDp1 - 3 Low-Power Gate Driver Circuit Using Depletion Mode a-IGZO TFTs**
J.-H. Kim, S. Wang, J. Oh, Y.-S. Kim, K. Park
Sungkyunkwan Univ., Korea
- AMDp1 - 4 Effects of Activation Annealing on the Reliability of Indium-Gallium-Zinc Oxide Thin-Film Transistors with Thermal Induced Source/Drain Regions**
J. Li, L. Lu, Z. Feng, H. S. Kwok, M. Wong
Hong Kong Univ. of S&T, Hong Kong
- AMDp1 - 5 Low Subthreshold Swing InGaZnO Thin Film Transistors with UV-Ozone-Treated BaTiO₃ Dielectric Layers**
H.-Y. Liou, A.-H. Cheng, S.-Y. Chu
Nat. Cheng Kung Univ., Taiwan
- AMDp1 - 6 High Mobility Thin Film Transistors Formed by Metal-Induced Crystallization of Amorphous Zinc Tin Oxide Semiconductors**
S. T. Kim, K. J. Lee, N. On, H. J. Seul, J. K. Jeong
Hanyang Univ., Korea
- AMDp1 - 7 Structure Engineering with ZrO₂ Thin Film for Highly Conducting Electrospun In₂O₃ Nanowire Field Effect Transistors**
H. Park, I. Lee, Y. H. Kim, B.-S. Bae
KAIST, Korea
- AMDp1 - 8 New p-Type Thin-Film Transistor**
K. Lee, S. Kim, H. Seul, N. On, J. Jeong
Hanyang Univ., Korea
- AMDp1 - 9 De-Mux Circuit on the FFS-Mode LCD with a-IGZO TFTs**
Y.-K. Chen, C.-C. Tsai, E.-C. Liu, K.-Y. Lai, Y.-H. Chen, S.-C. Chiang, F.-C. Lu, Y.-J. Lu, W.-K. Tsao, C.-H. Huang, Y.-Y. Huang
Chunghwa Picture Tubes, Taiwan

- AMDp1 - 10 New AMOLED Pixel Circuit with Concise 3-T Structure for Normally-off and Normally-on Amorphous IGZO TFTs**
P.-S. Chen, C.-L. Lee, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan
- AMDp1 - 11 Inkjet-Printed InGaZnO Thin Film Transistor on Flexible Substrate**
H. Hu, H. Huang, F. Li, T. Guo
Fuzhou Univ., China
- AMDp1 - 12 Investigation of Annealing Temperature and Atmosphere Effect on Solution Process ZTO Transistors with Different Metal Composite Doping**
N. X. He, W. X. Cheng, W. A. Cheng, S. J. Cheng, Y. W. Wang
Nat. Chagnhua Univ. of Education, Taiwan

----- Break -----

16:50 - 18:20

409

AMD4/LCT4: Super-High-Resolution LCDs

Chair: M. Inoue, Huawei Techs., Japan
 Co-Chair: M. Inoue, Apple, Japan

- AMD4/ LCT4 - 1: Invited 510 ppi 8K4K LTPS-TFT LCD with 30 Hz to 120 Hz Frame-Rate Driving**
 16:50
H. Miki, D. Suzuki, M. Okita, K. Mochizuki, H. Hayashi, T. Nakamura, H. Kato, A. Oyama, Y. Matsui, K. Nishiyama, H. Kimura
Japan Display, Japan
- AMD4/ LCT4 - 2: Invited Development of a 27-in. 8K4K LCD Prototype Using IGZO TFT Backplane**
 17:15
S. Yamada, F. Shimoshikiryoh, Y. Itoh, A. Ban
Sharp, Japan
- AMD4/ LCT4 - 3: Development of Cu BCE-Structure IGZO TFT for High ppi 32-in. 8K4K LCD**
 17:40
S.-M. Ge, S. Li, S.-J. Chen, X.-Y. Kong, W. Shi, H.-J. Zhang, Y.-H. Meng, L.-Q. Shi, X. Liu, M. Wang, C. K. Zhang, C.-Y. Chiu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China
- AMD4/ LCT4 - 4: Fast-Response Fringe Field Switching LCD for Virtual Reality**
 18:00
L. Fang, Y. Chen, Y. Liang, L. Wu, P. Shen, C. Tseng
XiaMen Tianma Microelect., China

Author Interviews

18:20 – 18:50

Friday, December 9

13:30 - 14:35

409

AMD7: Oxide TFT: Solution-Processed TFTs

Chair: T. Kamata, AIST, Japan
 Co-Chair: H. Kumomi, Tokyo Tech., Japan

AMD7 - 1: Invited Large-Scale Printed Sol-Gel Metal Oxide Dielectrics

13:30

W.-J. Lee, S. Park, M.-H. Yoon
Gwangju Inst. of S&T, Korea

AMD7 - 2 Uniform Large-Area Slot-Die Coating of Soluble Metal Oxide Semiconductor towards Mass Production of High-Performance TFT Backplanes

13:55

I. Katsouras^{}, J. Maas^{*}, J.-L. van der Steen^{*},
 G. Gelinck^{*,**}, R. Takata^{***}, M. Marinkovic^{***},
 A. Neumann^{***}, D.-V. Pham^{***}, R. Anselmann^{***}, T. H. Ke^{****},
 S. Smout^{****}, S. Schols^{****}*
^{}Holst Ctr., The Netherlands*
*^{**}Eindhoven Univ. of Tech., The Netherlands*
*^{***}Evonik Resource Efficiency, Germany*
*^{****}imec, Belgium*

AMD7 - 3 5.8-in. Ultra-Narrow Border LCD with Soluble Metal-Oxide TFTs and Integrated with GIP Circuit

14:15

*W.-K. Tsao, S.-C. Chiang, Y.-H. Chen, D.-C. Wu, K.-
 H. Tseng, Y.-H. Lin, H.-M. Chang, Y.-Y. Huang, D.-V. Pham^{*},
 K.-H. Su^{*}, M. Marinkovic^{*}, D. Weber^{*}, A. Merkulov^{*},
 R. Anselmann^{*}*
Chunghwa Picture Tubes, Taiwan
^{}Evonik Resource Efficiency, Germany*

----- Break -----

15:10 - 16:35

409

AMD8: Oxide TFT: Novel Processes and Applications

Chair: M.-H. Yoon, Gwangju Inst. of S&T, Korea
 Co-Chair: N. Morosawa, Samsung Display, Korea

AMD8 - 1: Invited Transparent and Flexible Memory Thin-Film Transistors Using Oxide Semiconductors

15:10

*S.-M. Yoon, S.-J. Kim, D.-J. Yun, M.-J. Park, W.-H. Lee,
 G.-H. Seo*
Kyung Hee Univ., Korea

- AMD8 - 2**
15:35 **Narrow-Pitch Low-Voltage-Driven and High-Speed Gate Driver with BA-IGZO TFTs for High-Resolution and Narrow-Bezel Displays**
H. Seo, D. Geng, J. Jang
Kyung Hee Univ., Korea
- AMD8 - 3**
15:55 **Novel Back-Channel-Etch Type In-Ga-Zn-Sn-O Thin Film Transistor with 4-Mask Technology**
J. Li, X. Hu*, Y. Zhai*, H. Yu*, J. Liu*, T. Sun*, S. Qin*, C. Lee*, F. Wang****
**Shenzhen China Star Optoelect. Tech., China*
***TCL Corporate Res., China*
- AMD8 - 4**
16:15 **High Density Plasma Sputtered InZnSnO Thin-Film Transistors Fabricated by Back-Channel Etching Method on Flexible Polyimide Substrate**
S. H. Cho, H.-O. Kim, O.-S. Kwon, E. S. Park, J.-H. Yang, J.-E. Pi, J. H. Choi, K. I. Cho, C.-S. Hwang, J.-R. Lee, J.-C. Do*, W.-W. Park*, Y.-S. Roh**
ETRI, Korea
**AVACO, Korea*

Author Interviews

16:35 – 17:10

Late-News Papers

Due Sep. 23, 2016

Submit a two-page camera-ready manuscript
via IDW website:<http://www.idw.or.jp/latenews.html>

IMID 2016

Aug. 23 – 26, 2016

ICC JEJU

Jeju, Korea

<http://www.imid.or.kr/>

Special Topics of Interest on Lighting and Quantum Dot Technologies

Wednesday, December 7

14:40 - 16:00

501

OLED2: OLED for Lighting Applications

Chair: Y. Kijima, Huawei Techs., Japan

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

OLED2 - 1: *Invited* Recent Advances in White OLED Technologies for OLED TV and Lighting

14:40

C.-W. Han, H.-S. Choi, S.-S. Jang, M.-S. Kang, S.-S. Park, H.-C. Choi, B.-C. Ahn, I.-B. Kang

LG Display, Korea

OLED2 - 2 High Efficiency FAPbBr₃ Perovskite Light-Emitting Diode

15:00

B. Xu, X. Zhang, W. Wang, J. Hao, W. Chen, D. Wang, J. Qin, W. Cao, P. Liu**, S. Chen, K. Wang*

Southern Univ. of S&T, China

**Tianjin Univ., China*

***Hubei Univ., China*

OLED2 - 3 OLED Lighting for Photorejuvenation

15:20

M.-Z. Dai, Y.-H. Chen, C.-C. Chen, H.-C. Hu, W.-L. Hung, T.-Y. Lin, J. H. Tao, W.-Y. Wang, C.-C. Chen, M.-T. Lee

AU Optronics, Taiwan

OLED2 - 4 Inkjet-Printed Flexible Quantum Dot Light-Emitting Diodes for Next Generation Display

15:40

J. Zhuang, C. Wei, W. Su, Z. Cui

Chinese Ac. of Sci., China

----- Break -----

16:20 - 17:30

502

PH1: Phosphors for Lighting Application

Chair: J. Silver, Brunel Univ. London, UK

Co-Chair: T. Kusunoki, Dexerials, Japan

PH1 - 1: *Invited* Highly Efficient Laser Spotlight Illuminator with a Novel Check-Patterned Phosphor Structure

16:20

K. Morimoto, Y. Nagasaki, K. Okuyama, T. Miwa, A. Takamori**, T. Tanaka*

Panasonic AIS, Japan

**IDEC, Japan*

***Osaka Univ., Japan*

PH1 - 2 **Improvement of Photodegradation of Nitridosilicate Phosphors by Composition Change and Realization of High CRI White-LEDs**

16:50

M. Kanno, M. Abe, T. Kusunoki

Dexerials, Japan

PH1 - 3 **Commercialized, Narrow Band, Red Emitting Phosphors for Wide Color Gamut Display Applications and LED Lighting**

17:10

S. P. Sista, F. Garcia-Santamaria, J. E. Murphy, A. Setlur, P. N. Kumar^{}, D. G. Porob^{*}, J. M. Baldesare^{**}, W. W. Beers^{**}, A. I. Chowdhury^{**}, W. E. Cohen^{**}, F. Du^{**}, C. D. Nelson^{**}*

GE Global Res., USA

^{}GE Global Res., India*

*^{**}GE Lighting, USA*

Author Interviews

17:40 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

Poster OLEDp2: OLED/LIT Poster

OLEDp2 - 1 **Efficiency Enhancement of Blue Organic Light-Emitting Diodes Using a Corrugated Structure**

M. Hwang, H. Lee, S. M. Cho

Sungkyunkwan Univ., Korea

OLEDp2 - 2 **Quantum Dot Light-Emitting Diode with Ligand-Controlled CuInS₂ / ZnS Quantum Dot**

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

Saitama Univ., Japan

OLEDp2 - 3 **Reduced Exciton Lifetime in TADF Materials for Blue OLEDs**

Y. C. Kim, G. H. Kim, G. W. Kim, J. B. Im, J. H. Kwon

Kyung Hee Univ., Korea

10:30 - 13:00

Multipurpose Hall

Poster VHFp2: Applied Vision and Human Factors - Lighting Technologies

VHFp2 - 1 **Quantification of LCD's Light Leakage of Each Corner Using 2D FFT and 2D CSF**

S. W. Jung, J. Y. Kim

LG Display, Korea

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster PHp1: Phosphors for Lighting Application

- PHp1 - 1** **New Structure of Phosphor Layer in pc-WLEDs Package for Optical Properties Improving**
L.-F. Nien, T.-S. Zhan, S.-Y. Chu
Nat. Cheng Kung Univ., Taiwan
- PHp1 - 2** **Structural Equation Approach for Designing of LED Cup Reflector and the Future Prospect**
C.-J. Ou, Z.-W. Huang, Y.-J. Hsu, C.-R. Ho
Hsiuping Univ. of S&T, Taiwan
- PHp1 - 3** **Electron Emission Properties of Cold Cathode Based on Silicon-Rich Silicon Dioxide Films Prepared by Magnetron Reaction Sputtering**
W. Zhao, M. Zhou, W. Hu
Xi'an Jiaotong Univ., China
- PHp1 - 4** **Synthesis and Luminescence Properties of Novel Eu²⁺-Doped BaGa₂SiS₆ and Ba₂Ga₈SiS₁₆ Thiogallate Phosphors for White LEDs**
S. P. Lee, S. D. Liu, T. M. Chen
Nat. Chiao Tung Univ., Taiwan
- PHp1 - 5** **Rare-Earth-Free Organic-Inorganic Hybrid Phosphor Made from APTES for White Light LED Application**
K. Hasegawa, K. Komatsu, A. Kato
Nagaoka Univ. of Tech., Japan
- PHp1 - 6** **Eu Concentration Dependence of Morphology and Emission Characteristics of Y₂WO₆:Eu Nano-Rod Phosphor**
S. Matsumoto, R. Kanai, M. Kimura, A. Kato
Nagaoka Univ. of Tech., Japan

14:10 - 16:40

Multipurpose Hall

Poster MEETp1: Quantum Dots and Nanotechnologies

- MEETp1 - 1** **CsPbBr₃ Based Perovskite Nanocrystals for Light-Emitting Diodes**
S.-Y. Cho, H.-M. Kim, J. Jang
Kyung Hee Univ., Korea

MEETp1 - 2 All Solution Processed Charge Generation Junction for Quantum-Dot Light Emitting Diodes

*E. Hwang, H.-M. Kim, J. Kim, J. Jang
Kyung Hee Univ., Korea*

Friday, December 9

10:40 - 12:00

201

PRJ3: Projection Components and Devices

Chair: S. Shikama, Setsunan Univ., Japan

Co-Chair: J. W. Pan, Nat. Chiao Tung Univ., Taiwan

PRJ3 - 1: *Invited* Experimental Characterization of Oxide Semiconductors Based SLM for Practical Use

10:40

*S. Nakashima, W. Nomura, N. Tate
Kyushu Univ., Japan*

PRJ3 - 2 Improvement of Output Power Dependence on Temperature in 638-nm BA-LD

11:00

*T. Yagi, K. Kuramoto, S. Abe, M. Kusunoki, M. Miyashita
Mitsubishi Elec., Japan*

PRJ3 - 3 Liquid Crystal Based Beam Deflectors

11:20

*D. Cuypers, X. Shang, H. De Smet
imec, Belgium*

PRJ3 - 4 Very Compact Waveguide-Type RGB Coupler with Multimode Converter

11:40

*J. Sakamoto, S. Katayose, K. Watanabe, M. Itoh,
T. Hashimoto
NTT, Japan*

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

413

MEET4: EL Quantum Dots Technologies

Chair: W. Milne, Univ. of Cambridge, UK

Co-Chair: X. W. Sun, Southern Univ. of S&T, China

MEET4 - 1: *Invited* Tandem QLED with Oxide Charge Generation Junction

13:30

*J. Jang, H.-M. Kim, E. Hwang**Kyung Hee Univ., Korea***MEET4 - 2: *Invited* Full-Color Patterning of Quantum Dot Displays Based on Transfer Printing and Inkjet Printing**

13:50

J. Han, D. Ko, J. Roh, H. Jung, Y. Lee, J. Sohn, W. K. Bae, C. Lee**Seoul Nat. Univ., Korea***KIST, Korea***MEET4 - 3: *Invited* Solution-Processable Hybrid Light-Emitting Devices Based on Organic/Inorganic Nanocomposites**

14:10

*F. Li, J. Lin, H. Hu, Y. Liu, T. Guo**Fuzhou Univ., China***MEET4 - 4: *Invited* Quantum Dot Electroluminescence**

14:30

*P. Kathirgamanathan, M. Kumaravel, N. Bramanathan, S. Ravichandran, L. M. Bushby, S. Surendrakumar**Brunel Univ. London, UK*

----- Break -----

15:10 - 16:30

413

MEET5: Emerging Quantum Dots and Nanotechnologies

Chair: J. Jang, Kyung Hee Univ., Korea

Co-Chair: Y. Bonnassieux, Ecole Polytechnique, France

MEET5 - 1: *Invited* What's Next for Quantum Dots? Delivering the Ultimate Visual Experience to the Mainstream

15:10

*H. Kim**Nanosys, USA***MEET5 - 2: *Invited* Heavy Metal-Free Quantum Dots for Consumer Applications**

15:30

*N. L. Pickett**Nanoco Techs., UK*

**MEET5 - 3: *Invited* Luminescent Nanocrystals and Devices for
15:50 Energy-Saving Quality Displays and Lighting**

K. Wang, X. W. Sun

Southern Univ. of S&T, China

**MEET5 - 4: *Invited* Optical Characteristics of Quantum Rod
16:10 Color Pixel Converter Combined with Twisted
Nematic LCD**

M. Hasegawa, Y. Hirayama

Merck, Japan

Author Interviews

16:30 – 17:10

IMID 2016

Aug. 23 – 26, 2016

ICC JEJU

Jeju, Korea

<http://www.imid.or.kr/>

SID Display Week 2017

May 21 – 26, 2017

Los Angeles Convention Center

Los Angeles, California, USA

<http://www.sid.org/>

IDW '17

The 24th International Display Workshops

Dec. 6 – 8, 2017

Sendai International Center

Sendai, Japan

<http://www.idw.or.jp/>

Special Topics of Interest on AR/VR and Hyper Reality

Wednesday, December 7

13:00 - 13:05

503

Opening of Workshop on Touch Panels and Input Technologies

Opening Remarks

13:00

N. Hashimoto, Citizen Holdings, Japan

13:05 - 14:20

201

INP1: AR and Interactive Systems

Chair: M. Sato, Tokyo Tech, Japan

Co-Chair: N. Hashimoto, Citizen Holdings, Japan

INP1 - 1: *Invited* Somatic Interfaces to Interact with Image Displays

13:05

*Y. Kume, T. Mizuno**

Tokyo Polytechnic Univ., Japan

**Univ. of Electro-Commun., Japan*

INP1 - 2: *Invited* Retinal Imaging Laser Eyewear with Focus-Free and Augmented Reality

13:30

M. Sugawara, M. Suzuki, H. Miyauchi

QD Laser, Japan

INP1 - 3: *Invited* String-Based Haptic Interface for Mobile Devices

13:55

K. Honda, S. Ma, Y. Qian*, M. Sato**

Tokyo Univ. of Marine S&T, Japan

**Tokyo Tech, Japan*

----- Break -----

14:40 - 16:00

Main Hall

3D2/3DSA2: Visualization & AR

Chair: J.-W. Kim, ETRI, Korea

Co-Chair: H. Kakeya, Univ. of Tsukuba, Japan

3D2/3DSA2 - 1: *Invited* Progress on Head-Worn Display Technology for Augmented Reality

14:40

Y. Wang, D. Cheng, C. Xu

Beijing Inst. of Tech., China

**3D2/
3DSA2 - 2
15:00** **Efficiency Balance for a See-Through Head-Mounted Display with Microstructures**
X. C. Wang, K. W. Zhao, Y. D. Lu, C. Y. Chuang, M. C. Chan, J. W. Pan
Nat. Chiao Tung Univ., Taiwan

**3D2/
3DSA2 - 3
15:20** **Changing Perceived Leg Length and Motion on Virtual Walking Generator**
T. Hamada, K. Yoshiho, R. Kondo, Y. Ikei, K. Hirota*, M. Kitazaki***
Toyohashi Univ. of Tech., Japan
**Tokyo Metropolitan Univ., Japan*
***Univ. of Electro-Commun., Japan*

**3D2/
3DSA2 - 4
15:40** **Sparse Registration for Small Amount of Overlap between Point Clouds**
L. Sun, Y. Manabe, N. Yata
Chiba Univ., Japan

----- Break -----

Author Interviews

17:40 – 18:20

Thursday, December 8

9:00 - 10:20	Main Hall
3DSA4/VHF4: Human Vision	

Chair: S. Yano, Shimane Univ., Japan
 Co-Chair: S. Uehara, Toshiba, Japan

**3DSA4/
VHF4 - 1:
9:00** **Invited Brain Function Analysis of Visual and Cross-Modal Information**
H. Ando,***
**NICT, Japan*
***Osaka Univ., Japan*

**3DSA4/
VHF4 - 2:
9:20** **Invited Human Vision Response in AR & VR**
Y.-S. Chen, Y.-P. Huang, C.-Y. Chen***
Cathay General Hospital, Taiwan
**Nat. Chiao-Tung Univ., Taiwan*
***Nat. Taiwan Univ. of S&T, Taiwan*

**3DSA4/
VHF4 - 3
9:40** **Attentive Tracking of Moving Objects in
Stereoscopic Viewing**
A. U. Rehman, Y. Nosaki, K. Kihara*, S. Ohtsuka**
Kagoshima Nat. College of Tech., Japan
**Kagoshima Univ., Japan*

**3DSA4/
VHF4 - 4
10:00** **Subjective Experiment Study on Binocular Overlap
Effect of Different Colors for the Augmented Reality
Near-Eye Display**
H. Zhang, Y. Tang, Y. Zheng, Y. Xie, B. Wang*
Southeast Univ., China
**S&T on Electro-optic Control Lab., China*

Author Interviews

10:30 – 11:10

----- Break -----

10:30 - 13:00**Multipurpose Hall****Poster 3Dp1/3DSAp1: 3D & Hyper-Realistic Systems and Applications 1**

**3Dp1/
3DSAp1 - 2** **Does Eye Strain Decrease after Observing 3D
Imaging on the Light Filed Display?**
*M. Shoda, T. Iwane, R. Niimi**
NIKON, Japan
**Niigata Univ., Japan*

**3Dp1/
3DSAp1 - 3** **Developing a Photometric Device for Generating
Quality Texture and Normal Map**
Y.-C. Chen, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan

**3Dp1/
3DSAp1 - 5** **CNN-Based Pedestrian and Vehicle Detection Using
Stereo Camera**
G.-C. Lee, J. Yoo
Kwangwoon Univ., Korea

**3Dp1/
3DSAp1 - 10** **Study on Compact Holographic Head-Mounted
Display for Augmented Reality**
E. Murakami, Y. Oguro, Y. Sakamoto
Hokkaido Univ., Japan

**3Dp1/
3DSAp1 - 17** **Evaluation of Perceived 3D Structure of Multi-View
3D Medical Image Based on Transparent
Visualization: A Psychophysical Study**
Y. Sakano, Y. Kitaura, K. Hasegawa*, R. Lopez-Gulliver*,
H. Ando, S. Tanaka**
NICT, Japan
**Ritsumeikan Univ., Japan*

3Dp1/ 3DSAp1 - 18 Accommodation Measurement in VR Device of Google Cardboard Type

H. Kang, H. Hong
Seoul Nat. Univ. of S&T, Korea

3Dp1/ 3DSAp1 - 19 Head Tracking Based Immersive Sound Reproduction for Virtual Reality Display

*C. J. Chun, K. M. Jeon, J. M. Moon, H. K. Kim, J. Yoo**
Gwangju Inst. of S&T, Korea
**Kwangwoon Univ., Korea*

3Dp1/ 3DSAp1 - 20 Audio-Haptic Display for a Sense of Walking: Influence of Arm-Swing Interaction and User's Posture on Reproduced Walking in Real Space

Y. Okuya, Y. Ikei, K. Hirota**, T. Amemiya***, M. Kitazaki*****
Univ. Paris-Sud, France
**Tokyo Metropolitan Univ., Japan*
***Univ. of Electro-Commun., Japan*
****NTT, Japan*
*****Toyohashi Univ. of Tech., Japan*

3Dp1/ 3DSAp1 - 22 Bodily Reliving Experience Based on Multisensory Passive Stimulation

S. Imao, K. Yamada, N. Saka, M. Kurosawa, R. Koide, Y. Ikei, K. Hirota, T. Amemiya**, M. Kitazaki***
Tokyo Metropolitan Univ., Japan
**Univ. of Electro-Commun., Japan*
***Toyohashi Univ. of Tech., Japan*

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster INPp1: Interactive Technologies

INPp1 - 1 Single Pixel Imaging with a High-Frame-Rate LED Digital Signage

S. Onose, M. Takahashi*, H. Yamamoto**, Y. Mizutani**, T. Yasui*****
**Utsunomiya Univ., Japan*
***JST, Japan*
****Osaka Univ., Japan*
*****Tokushima Univ., Japan*

INPp1 - 3 Gesture Recognition Using RGB-D Camera for 3D Virtual Reality and Interaction System

Y.-Y. Hsu, L.-J. Zheng, H.-I. Ning, Y.-C. Fan
Taipei Univ. of Tech., Taiwan

----- Break -----

14:10 - 16:40

Multipurpose Hall

Poster 3DSAp2/3Dp2: 3D & Hyper-Realistic Systems and Applications 2

**3DSAp2/
3Dp2 - 15** **Colorizing 3D Objects in Free-Viewpoint Through a
Transparent LCD**

H.-P. Chien, P.-L. Sun, Y.-C. Su, H.-C. Li, Y.-P. Pi

Nat. Taiwan Univ. of S&T, Taiwan

Friday, December 9

9:00 - 10:20

201

PRJ2: Wearable Display

Chair: D. Cuypers, imec, Belgium

Co-Chair: T. Suzuki, JVC KENWOOD, Japan

PRJ2 - 1 **Wearable See-Through Retinal Projector Using
9:00** **Optical Simulation Design**

H. A. Chen, W. S. Sun, Y. C. Chiang*, Z. P. Yang, J. W. Pan*

Nat. Chiao Tung Univ., Taiwan

**Nat. Central Univ., Taiwan*

PRJ2 - 2 **Optical Design of Wide Viewing Eyeglass-Type
9:20** **Wearable Device Using Multiple Reflection Element**

S. Sawada, A. Moriya, T. Sasaki, J. Yamaguchi, M. Baba

Toshiba, Japan

PRJ2 - 3 **Optimization and Verification of Viewing Angle for
9:40** **Wearable Display Device for Outdoor Use**

J. Iwai, H. Kimura

Telepathy Japan, Japan

PRJ2 - 4 **Common Platform for Maintenance System with
10:00** **Wearable Device**

T. Fujiwara, R. Kabata, Y. Narita*, K. Kikuchi*, K. Oonishi**

Hitachi, Japan

**Hitachi Syss., Japan*

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

201

PRJ4/DES3: 3D and Near Eye Displays

Chair: J. Reitterer, TriLite Techs., Austria

Co-Chair: T. Hayashi, Okamoto Glass, Japan

PRJ4/ DES3 - 1: Invited Projection Mapping Technologies for AR

13:30 D. Iwai

*Osaka Univ., Japan***PRJ4/ DES3 - 2: Invited Animating Static Objects by Illusion-Based Projection Mapping**13:50 S. Nishida, T. Kawabe, T. Fukiage, M. Sawayama
*NTT, Japan***PRJ4/ DES3 - 3: Invited 3D Billboards without Glasses**14:10 J. Reitterer, F. Fidler, G. Schmid, C. Hambeck,
F. S. Julien-Wallsee, W. Leeb*, U. Schmid**TriLite Techs., Austria***Tech. Univ. Wien, Austria***PRJ4/ DES3 - 4: Smart Contact Lens Platform with a Deformed Active Artificial Iris**14:30 A. V. Quintero^{*,**}, R. Verplancke^{*,**}, J. Vanfleteren^{*,**},
H. De Smet^{*,**}**Ghent Univ., Belgium****imec, Belgium*

----- Break -----

15:10 - 16:40

Main Hall

DES4/3D8: 3D Display and Sensor

Chair: Y. Oyamada, Tottori Univ., Japan

Co-Chair: H. Yamamoto, Utsunomiya Univ., Japan

DES4/ 3D8 - 1: Invited Displaying Real World Light Fields Using Stacked LCDs15:10 K. Takahashi, Y. Kobayashi, T. Fujii
*Nagoya Univ., Japan***DES4/ 3D8 - 2: Invited Lock-in-Detection Based Time-of-Flight CMOS Image Sensors**15:35 K. Yasutomi, S. Kawahito
Shizuoka Univ., Japan

**DES4/
3D8 - 3
16:00**

**Holographic Augmented Reality Head-Up Display
with Eye Tracking and Steering Light Source**

*Y.-T. Kim, J. Seo, W. Seo, G. Sung, Y. Kim, H. Song, J. An,
C.-S. Choi, S. Kim, H. Kim, Y. Kim, Y. Kim, H.-S. Lee*

Samsung Elect., Korea

**DES4/
3D8 - 4
16:20**

**Flat Autostereoscopic 3D Display with Enhanced
Resolution Using a Wavelength Selective Filter
Barrier**

*S. Jurk, M. Kuhlmeier, R. Bartmann, B. Duckstein,
R. de la Barré*

Fraunhofer HHI, Germany

Author Interviews

16:40 – 17:10

3DSA 2016

The 8th International Conference on 3D Systems and Applications
Held in conjunction with IDW/AD '16

Fukuoka International Congress Center
December 7-9, 2016

See page 133 for details

Free admission with your IDW/AD '16 registration name tag
<http://www.3dsa.org/>

Special Topics of Interest on Printed Electronics

Thursday, December 8

9:00 - 10:20

413

FMC4: Standardization on Printed Electronics

Chair: K. Kälántär, Global Optical Solutions, Japan

Co-Chair: Y. Inoue, Corning Japan, Japan

FMC4 - 1: *Invited* Standardization Activities on Printed Electronics of IEC TC 119

9:00

K. Suganuma, S. Maeda^{,**}*

Osaka Univ., Japan

^{}Chem. Materials Evaluation & Res. Base, Japan*

*^{**}Mitsubishi Chem., Japan*

FMC4 - 2: *Invited* Overview of Standardization Activities for Stretchable Materials in IEC TC 119, Printed Electronics

9:20

S. Maeda

Toyobo, Japan

FMC4 - 3: *Invited* World First International Standard for Printed Electronics Materials

9:40

C. Sekine, M. Oda^{}, S. Maeda^{**}, T. Sato^{***}*

Sumitomo Chem., Japan

^{}Japan Advanced Printed Elect. Tech. Res. Assn., Japan*

*^{**}Toyobo, Japan*

*^{***}Fujifilm, Japan*

FMC4 - 4: *Invited* Standardization Activities on Printed Electronics Devices in IEC TC 119

10:00

T. Minakata, K. Hyodo^{}*

Asahi Kasei, Japan

^{}Konica Minolta, Japan*

Author Interviews

10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

Poster OLEDp3: OLED/PE Poster**OLEDp3 - 1 Investigation on Poly(3-Hexylthiophene) Nano-Fiber Transistors with Hybrid Nano Compositor**

M.-H. Chih, C.-E. Tsai, Y.-T. Chen, Y.-J. Li, Y.-W. Wang
Nat. Changhua Univ. of Education, Taiwan

OLEDp3 - 2 Investigation of Solution Process Rubrene Transistors under Different Annealing Conditions

Y.-H. Cheng, P.-C. Lai, P.-Y. Tsai, K.-C. Fan, Y.-W. Wang
Nat. Changhua Univ. of Education, Taiwan

OLEDp3 - 3 Multiple Horizontal-Dip-Coating of Small Molecular Emission Layers for Solution-Processable Organic Light-Emitting Devices

H. G. Jeon, W. S. Lee, J. N. Huh, Y. Aggarwal, B. Park
Kwangwoon Univ., Korea

----- Lunch -----

Friday, December 9

13:30 - 14:45

501

FLX5: Flexible Printed Electronics 1

Chair: H. Maeda, Dai Nippon Printing, Japan
 Co-Chair: H. Endo, NEC, Japan

FLX5 - 1: Invited Organic Complementary Circuits Based on Solution-Processed Organic Transistors: Toward Flexible Electronics

13:30

M. Uno
Tech. Res. Inst. of Osaka Pref., Japan

FLX5 - 2: Invited High Mobility and Operational Stability of Top-Gate Organic Transistors Based on Solution-Processable Organic Semiconductors

13:55

T. Nagase, K. Takagi, R. Nakamichi, T. Kobayashi, H. Naito
Osaka Pref. Univ., Japan

FLX5 - 3: Invited Flexible/Stretchable Electronics Based on Carbon Nanotube Thin Films

14:20

Y. Ohno
Nagoya Univ., Japan

----- Break -----

15:10 - 16:15

501

FLX6: Flexible Printed Electronics 2

Chair: T. Furukawa, Yamagata Univ., Japan

Co-Chair: T. Shiro, Teijin, Japan

FLX6 - 1: 15:10 *Invited* Printing Ultrafine Conductive Pattern Through Ligand Conversion of Metal Nanoparticles on Photoactivated Surface*T. Yamada**AIST, Japan***FLX6 - 2: 15:35 New Alignment Technology for Printed Electronics over Large Flexible Substrates***Y. Mishima, M. Akiyama, T. Noudou, K. Hashimoto, N. Watanabe, T. Kamata**Japan Advanced Printed Elect. Tech. Res. Assn., Japan***FLX6 - 3: 15:55 Inkjet Printing Equipment for Multiple Layered Electronics Devices on Roll-to-Roll Flexible Substrates***S. Tomoeda, H. Hirata, T. Hatakeyama**Toray Eng., Japan***Author Interviews**

16:30 – 17:10

Reception

Wednesday, Dec. 7, 2016

19:00 – 21:00

Crowne Grand Ball Room (2F)

ANA Crowne Plaza Fukuoka

See page 14 for details

Late-News Papers

Due Sep. 23, 2016

Submit a two-page camera-ready manuscript
via IDW website:<http://www.idw.or.jp/latenews.html>

Special Topics of Interest on Automotive Displays

Wednesday, December 7

13:05 - 14:05

502

VHF1: Ergonomics for Automotive Applications

Chair: Y. Shimodaira, Shizuoka Univ., Japan

Co-Chair: K. Sakamoto, Panasonic, Japan

VHF1 - 1 **Influence of Image Position and Visual Target on
13:05** **Depth Perception When Using Automotive 3D
Head-Up Display**

R. Noguchi, T. Daimon, T. Mori, K. Kasazumi**

Keio Univ., Japan

**Panasonic, Japan*

VHF1 - 2 **Traffic Signal with PWM Coding for Visible Light
13:25** **Communication**

C.-J. Ou, M.-Y. Chen, Z.-W. Huang, C.-H. Ou, C.-Y. Ou**

Hsiuping Univ. of S&T, Taiwan

**Washington High School, Taiwan*

VHF1 - 3 **Key Perceptual Factors for Smart Garnish Light/
13:45** **Display**

J.-K. Ko, S.-Y. Choi, M.-S. Noh, S.-S. Kim, G.-H. Kim*,
W.-K. Song*, K.-G. Seok***

Korea Inst. of Lighting & Tech., Korea

**Seoyon Elect., Korea*

***Dilussion, Korea*

----- Break -----

14:40 - 16:05

201

INP2: Automotive HMI

Chair: N. Haneda, DENSO, Japan

Co-Chair: H. Haga, NLT Techs., Japan

INP2 - 1: ***Invited* Communication System Using Lights for
14:40** **Automobile**

N. Haneda

DENSO, Japan

INP2 - 2 **Automotive Grade Haptic Feedback System Based on Automotive Grade Embedded Operating System**
15:05

F.-H. Tsao, C.-L. Li, W.-F. Chang, H.-H. Chen, H.-M. Su, W.-T. Tseng
Chunghwa Picture Tubes, Taiwan

INP2 - 3 **Smart Steering Wheel with Swept Frequency Capacitive Sensing**
15:25

Y. Ono, Y. Morimoto, R. Hattori, M. Watanabe, N. Michida*, K. Nishikawa**
Kyushu Univ., Japan
**Mazda Motor, Japan*

INP2 - 4 **Electrostatic Tactile Display for Interaction with Multiple-Unique Sensations**
15:45

D. Sugimoto, H. Haga, K. Shigemura
NLT Techs., Japan

----- Break -----

Author Interviews

17:40 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

**Poster VHFp1: Applied Vision and Human Factors
 - Automotive Applications**

VHFp1 - 1 **Evaluation of Specular Reflectance for Automotive Display**

K. Mo, B. Choi
LG Display, Korea

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster 3DSAp2/3Dp2: 3D & Hyper-Realistic Systems and Applications 2

3DSAp2/3Dp2 - 3 **Depth Perception Difference by Only Two Light Sources with Various Distances in Non-Overlapped DFD Display**

R. Takano, H. Mizushina, S. Suyama
Tokushima Univ., Japan

Friday, December 9

15:10 - 16:30

201

PRJ5: Automotive Displays

Chair: V. R. Bhakta, Texas Instrs., USA

Co-Chair: K. Ohara, Texas Instrs., Japan

PRJ5 - 1: Invited Adaptive High Resolution Headlight Using Texas Instruments DLP Technology

15:10

*V. R. Bhakta, B. Ballard**Texas Instrs., USA***PRJ5 - 2 Study on Improvement of Conspicuity at Night with Lighting for Drawing on a Road Surface**

15:30

*Y. Tsuchiya, R. Kawaji, S. Iwamoto**Honda R&D, Japan***PRJ5 - 3 Integrated RGB Laser Light Module for Augmented and Virtual Reality Applications**

15:50

*J. Reitterer, F. Fidler, G. Schmid, C. Hambeck,
F. S. Julien-Wallsee, W. Leeb*, U. Schmid***TriLite Techs., Austria***Tech. Univ. Wien, Austria***PRJ5 - 4 Development of Head-Up Display for Railway Vehicle**

16:10

*A. Michimori, J. Kondo, S. Nakahara, A. Heishi,
T. Yamamura, S. Ohashi, H. Yokoyama*, H. Horiuchi***Mitsubishi Elec., Japan***East Japan Railway, Japan***Author Interviews**

16:30 – 17:10

IDW Best Paper Award**IDW Outstanding
Poster Paper Award**

These awards will go to the most outstanding papers selected from those presented at IDW/AD '16.

The 2016 award winners will be announced on the IDW website: <http://www.idw.or.jp/award.html>

Topical Session on User Experience and Cognitive Engineering

Wednesday, December 7

13:00 - 13:05

503

Opening

Opening Remarks

13:00

H. Shibata, Fuji Xerox, Japan

13:05 - 14:25

503

UXC1: User Study

Chair: H. Shibata, Fuji Xerox, Japan

Co-Chair: T. Matsui, Osaka Univ., Japan

UXC1 - 1: *Invited* How People Change Their Social Behaviors around Different Public Displays?

13:05

J. Ichino

Kagawa Univ., Japan

UXC1 - 2: *Invited* Interact with Art

13:25

M. Tanaka, K. Isoda, I. Hisanaga

Dai Nippon Printing, Japan

UXC1 - 3: *Invited* The Effect of Conference Using Table with Display and Touch Interface

13:45

T. Nishino, Y. Yagi, K. Fujita

Itoki, Japan

UXC1 - 4 VR Simulation Verification for the Space Design with the Tactile Reaction

14:05

T. Ainoya, Y. Tanaka, K. Kasamatsu

Tokyo Metropolitan Univ., Japan

----- Break -----

Final Program

The final program of IDW/AD '16 will be available on the website (<http://www.idw.or.jp/>) from the middle of November

14:40 - 16:00

503

UXC2/VHF2: Human Factors

Chair: H. Shibata, Fuji Xerox, Japan

Co-Chair: N. Hiruma, NHK-ES, Japan

**UXC2/
VHF2 - 1:
14:40** *Invited* **Development of Japanese Electronic Text Readers Based on Perceptual Mechanisms of Reading***J. Kobayashi^{*},^{**}, E. Shinbori^{*}, T. Kawashima^{**}**^{*}Dai Nippon Printing, Japan**^{**}Future Univ. Hakodate, Japan***UXC2/
VHF2 - 2
15:00** **Match Optimization of LED and Color Filter Spectrum for LCD Optics***H. Chen, T. Zhou, P. Shen, C. Tseng**XiaMen Tianma Microelect., China***UXC2/
VHF2 - 3
15:20** **Experiment of Psychological Impact of LED Display***T. Matsui, T. Fukuda, S. Nagamachi^{*}**Osaka Univ., Japan**^{*}LEM Design Studio, Japan***UXC2/
VHF2 - 4
15:40** **Effects of Different Comfortable Binocular Disparities on the DP3 Signal-an Event-Related Potential Study Using an Oddball Task***P. Ye, X. Wu, D. Gao, S. Deng, N. Xu, J. She, J. Chen**Sun Yat-Sen Univ., China*

----- Break -----

Author Interviews

17:40 – 18:20

Thursday, December 8

9:00 - 10:25

503

UXC3: Interaction Design

Chair: J. Ichino, Kagawa Univ., Japan

Co-Chair: H. Shibata, Fuji Xerox, Japan

**UXC3 - 1:
9:00** *Invited* **Interaction Techniques on Touchscreens with Elastic/Non-Flat Surfaces***B. Shizuki**Univ. of Tsukuba, Japan*

- UXC3 - 2** **Proposal of a Paper Book Type Input Device for Page Navigation for Digital Documents**
 9:25
S. Masunaga, X. Xu, H. Terabe, K. Shibuta, H. Shibata
Fuji Xerox, Japan
- UXC3 - 3** **Supporting Reading Itself: An Exploration of Temporal Ink Pen for Making Annotations**
 9:45
X. Xu, H. Shibata
Fuji Xerox, Japan
- UXC3 - 4** **Implementation and Evaluation of a Design Support System Using Pen Device for Animation**
 10:05
T. Maruya, S. Tano, T. Hashiyama, M. Iwata^{}, J. Ichino^{**}, Y. Hyono*
Univ. of Electro-Commun., Japan
^{*}*Tokyo Metropolitan College of Ind. Tech., Japan*
^{**}*Kagawa Univ., Japan*

10:25 - 10:28

503

Short Presentation UXCp1: User Experience

All authors of poster papers for the UXCp1 session will give a brief 3-minute oral presentations with no discussion time in advance.

Author Interviews

10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

Poster UXCp1: User Experience

- UXCp1 - 1** **Investigation of Effect of Bioluminescent Light on Human Using Electroencephalogram**
 10:30
N. Thammasan, M. Iwano, K. Moriyama^{}, K. Fukui, K. Kawintiranon^{**}, Y. Buatong^{**}, S. Inagaki, T. Wazawa, T. Nagai, M. Numao*
Osaka Univ., Japan
^{*}*Nagoya Inst. of Tech., Japan*
^{**}*Chulalongkorn Univ., Thailand*

----- Lunch -----

Workshop on LC Science and Technologies

Wednesday, December 7

13:00 - 14:20

412

LCT1: Photoalignment

Chair: K. Miyachi, JSR, Japan

Co-Chair: Y. Iwashita, DIC, Japan

LCT1 - 1 **Development of a Novel Azobenzene Diamine Compound for Photoalignment Film with High Transmittance**
13:00

Y. Tsukada, Y. Ooki, Y. Oguchi, D. Touma
JNC Petrochem., Japan

LCT1 - 2 **Chromaticity Improvement of Novel Photoalignment Material for IPS-LCDs**
13:20

Y.-J. Song, C.-G. Yuan, W. Ren, C.-C. Hsieh, Y.-C. Zhao, R.-T. Zhao, X. Li, C.-Y. Chiu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China

LCT1 - 3 **High Anchoring Composite Photoalignment Material with High Photosensitivity**
13:40

I. Rushnova, A. Murauski, V. Mikulich*, A. Muravsky**
Belarusian State Univ., Belarus
**NAS of Belarus, Belarus*

LCT1 - 4 **Photo-Aligned Quantum Rods Enhancement Films for LCDs**
14:00

W. Zhang, A. K. Srivastava, J. Schneider, A. Susha*, A. Rogach*, V. G. Chigrinov, H. S. Kwok*
Hong Kong Univ. of S&T, Hong Kong
**City Univ. of Hong Kong, Hong Kong*

----- Break -----

14:40 - 15:40

412

LCT2: Evaluations

Chair: M. Suzuki, Merck, Japan

Co-Chair: T. Nose, Akita Pref. Univ., Japan

LCT2 - 1 **Automatic Multi-Stable Cholesteric LCDs Analysis System for Dynamic Drive Scheme Optimization**
14:40

C.-C. Li, C.-W. Chu, C.-W. Chen, H.-C. Jau, T.-H. Lin
Nat. Sun Yat-Sen Univ., Taiwan

LCT2 - 2 **Optical Surface Profilometry with Dynamic Fringe Pattern Generator Using Multi-Domain LC Phase Array**
15:00
H. Park, K.-I. Joo, M. Kim, M.-K. Park, J. Hahn, H.-R. Kim
Kyungpook Nat. Univ., Korea

LCT2 - 3 **Reflection Wavefront Design with Cholesteric LCs**
15:20
H. Yoshida^{,**}, J. Kobashi^{*}, Y. Mohri^{*}, M. Ozaki^{*}*
^{*}*Osaka Univ., Japan*
^{**}*Japan S&T Agency, Japan*

----- Break -----

16:20 - 17:30

412

LCT3/FLX1: Flexible LCDs

Chair: S. Oka, Japan Display, Japan
 Co-Chair: M. Kimura, Nagaoka Univ. of Tech., Japan

LCT3/ ***Invited* Roll Plastic TFT-LCD with 20R Curvature**
FLX1 - 1: **Using Soft Backlight Unit**
16:20
N. Sugiura, P.-H. Chiu, W.-Y. Li, Z.-H. Chen, W.-J. Chiu,
C.-R. Chang, T.-H. Huang, Y.-H. Lai, J.-K. Lu, Y.-C. Lin
AU Optronics, Taiwan

LCT3/ ***Invited* Substrate and Polymer-Wall Technologies for**
FLX1 - 2: **Future Foldable LCD Applications**
16:45
T. Ishinabe, Y. Obonai, S. Honda, Y. Shibata, H. Fujikake
Tohoku Univ., Japan

LCT3/ **Flexible LC Light Shutter with Polymer Wall**
FLX1 - 3 **Structure**
17:10
S.-M. Ji, J.-W. Huh, J.-H. Kim, Y.-G. Choi, B.-H. Yu,
T.-H. Yoon
Pusan Nat. Univ., Korea

Author Interviews

17:40 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

Poster LCTp1: Evaluations

- LCTp1 - 1** **New Method for Fast Judgment and Analysis of LCD Reddish**
C. Zhong, H. Chen, T. Zhou, P. Shen, C. Tseng
XiaMen Tianma Microelect., China
- LCTp1 - 2** **Analysis of Gamma Variation in High ppi Mobile Display**
J. Li, Z. Xu, H. Chu, Y. Guo, L. Wang, Q. Guo, M. Wang, S. Wang, K. H. Park, Y. B. Lee, C. Che, S. K. Lee
BOE HF, China
- LCTp1 - 3** **Simple Technique for Measuring Phase Modulation and Accelerating Response Time for Off-Axis System with Thick Spatial Light Modulator**
C. Wang
Jasperdisplay, Taiwan
- LCTp1 - 4** **Computer Simulation for Dielectrophoresis in Nematic-Isotropic Mixtures on Honeycomb-Shaped Electrodes**
J.-S. Lee
Sungkyunkwan Univ., Korea
- LCTp1 - 5** **Study of Image Sticking of LC Cell with Dielectric Spectrum**
Y.-L. Tsai, A. Y.-G. Fuh, C.-Y. Huang, C.-Y. Chen**, C.-Y. Huang***
Nat. Cheng Kung Univ., Taiwan
**Daxin Material, Taiwan*
***Nat. Changhua Univ. of Education, Taiwan*
- LCTp1 - 6** **Ellipsometric Characterization of the Surface of Rubbed Polyimide and Distribution of LC Molecules in TN Cells**
S. Y. Cho, S. U. Park**, S. M. Yang*, S. Y. Kim****
**Ajou Univ., Korea*
***Ellipso Tech., Korea*
- LCTp1 - 7** **Necessity and Efficacy of Inspecting a Minute Twist of LC Director Alignment in FFS/IPS LCDs**
A. Ikemura, M. Kitamura
SHINTECH, Japan

LCTp1 - 8 Analysis of Bubble in TFT-LCD*S. Liu, S. Li, F. Liu, Y. Yu**InfoVision Optoelect., China*

10:30 - 13:00

Multipurpose Hall

Poster LCTp2: Novel LC Applications**LCTp2 - 1 Imaging Performance Using a Large Aperture LC Lens Embedded a Floating-Ring Electrode***C.-J. Hsu, J.-J. Jhang, C.-Y. Huang**Nat. Changhua Univ. of Education, Taiwan***LCTp2 - 2 Electrically Blind Window Based on Polymer Stabilized Cholesteric Texture Films***S. T. Wu^{*,***}, Z. B. Shina^{*}, C. H. Yang^{**}, A. Y.-G. Fu^{*,**,*}**^{*}Nat. Cheng Kung Univ., Taiwan**^{**}Inst. of Electro-optical Sci. & Eng., Taiwan**^{***}Advanced Optoelect. Tech. Ctr., Taiwan***LCTp2 - 3 Coaxially Bifocal LC Lens with Double Hole-Patterned Electrodes***S.-Y. Chih, C.-J. Hsu^{*}, C.-Y. Huang^{*}, A. Y.-G. Fuh**Nat. Cheng Kung Univ., Taiwan**^{*}Nat. Changhua Univ. of Education, Taiwan***LCTp2 - 4 Measurement of Photoluminescence Spreading in an LC/Dye Cell***S. Ozawa, M. Ohta, S. Itaya, I. Fujieda**Ritsumeikan Univ., Japan***LCTp2 - 5 Polymer-Stabilized LC Lens Using a Floating-Ring Electrode***Y.-J. Liu, C.-J. Hsu, C.-Y. Huang**Nat. Changhua Univ. of Education, Taiwan***LCTp2 - 6 Model Incorporating Self-Absorption for a Display-Integrated Photovoltaic System***I. Fujieda**Ritsumeikan Univ., Japan***LCTp2 - 7 Thermal-Induced Black LC-Polymer Composite Display***S. Kim, W.-J. Lee, Y.-H. Kim, G. H. Kim**ERTI, Korea*

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster LCTp3: Quality of LCDs

- LCTp3 - 1** **Analysis of the Relationship between Pixel Electrode Design and LC Alignment in VA-LCD**
M. Li, L. Chen, H. H. Chen
Shenzhen China Star Optoelect. Tech., China
- LCTp3 - 2** **Research of Optimize LCD Quality in ADS Mode**
L. H. Zhang, Y. Y. Qu, B. H. Zhao, D. Wang, S. Liu
Beijing BOE Display Tech., China
- LCTp3 - 3** **Novel Photo-Polymer Stabilization of Nano-Phase-Separated LCs with Fast Response**
T. Fujisawa, K. Jang, F. Kodera, Y. Iwashita, H. Hasebe, H. Takatsu
DIC, Japan
- LCTp3 - 4** **Improvement of the Off-Axis Gamma Distortion in 8-Domain Patterned Vertical Alignment Mode**
Y.-C. Shin, M.-K. Park, H. G. Kim, J.-S. Park, H.-R. Kim
Kyungpook Nat. Univ., Korea
- LCTp3 - 5** **Effects of Hollow Silica Nanoparticles on Ionic Properties of the LC Cells**
M.-K. Huang, C.-Y. Huang, K.-Y. Lo, H.-P. Lin**
Nat. Changhua Univ. of Education, Taiwan
**Nat. Cheng Kung Univ., Taiwan*
- LCTp3 - 6** **Color Filter/Polarizer-Free LC Composite Display Having Color Dyes**
G. H. Kim, W. J. Lee, S. Kim, Y. H. Kim
ETRI, Korea
- LCTp3 - 7** **Stable Reverse TN-LCDs Using High Pretilt Angle Alignment Layers**
K. Takatoh, H. Uno, H. Taniguchi, I. Watanabe
Tokyo Univ. of Sci., Yamaguchi, Japan
- LCTp3 - 8** **Viewing Angle Controllable LCDs with Hybrid Aligned Nematic LC**
L. Jiang, Z. Su, C. Yu, P. Liao, S. Chung
InfoVision Optoelect., China

- LCTp3 - 9 Influence of LC Dielectric on TFT-LCD of UV2A LC Mode**
X. Li, C.-C. Hsieh, Y.-C. Zhao, Y. Zhang, Y.-J. Song, W. Ren, C.-G. Yuan, C.-Y. Chiu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China
- LCTp3 - 10 Non-Contact LC Alignment by Using ZnO Films**
C.-C. Liu, C.-L. Lee, F.-J. Guo, S.-C. Jeng
Nat. Chiao Tung Univ., Taiwan
- LCTp3 - 11 Single-Layered Retardation Film with Negative Wavelength Dispersion Birefringence Using UV-Curable LC**
M. Yamamoto, Y. Kuwana, K. Endou, I. Nishiyama
DIC, Japan
- LCTp3 - 12 Optical Performance of Twisted Nematic VS Twist Angle**
B. Li, Z. Li, J. Jiang
InfoVision Optoelect., China
- LCTp3 - 13 Method to Fundamentally Improve Edge Mura for Large LCD**
Y. Xu, S. Zhang, X. Huang
InfoVision Optoelect., China

----- Break -----

16:50 - 18:20

409

AMD4/LCT4: Super-High-Resolution LCDs
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: M. Inoue, Huawei Techs., Japan

Co-Chair: M. Inoue, Apple, Japan

AMD4/ LCT4 - 1: Invited 510 ppi 8K4K LTPS-TFT LCD with 30 Hz to 120 Hz Frame-Rate Driving

16:50

H. Miki, D. Suzuki, M. Okita, K. Mochizuki, H. Hayashi, T. Nakamura, H. Kato, A. Oyama, Y. Matsui, K. Nishiyama, H. Kimura

Japan Display, Japan

AMD4/ LCT4 - 2: Invited Development of 27-in. 8K4K LCD Prototype Using an IGZO TFT Backplane

17:15

S. Yamada, F. Shimoshikiriyoh, Y. Itoh, A. Ban

Sharp, Japan

**AMD4/
LCT4 - 3
17:40** **Development of Cu BCE-Structure IGZO TFT for High ppi 32-in. 8K4K LCD Display**
S.-M. Ge, S. Li, S.-J. Chen, X.-Y. Kong, W. Shi, H.-J. Zhang, Y.-H. Meng, L.-Q. Shi, X. Liu, M. Wang, C. K. Zhang, C.-Y. Chiu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China

**AMD4/
LCT4 - 4
18:00** **Fast-Response Fringe Field Switching LCD for Virtual Reality**
L. Fang, Y. Chen, Y. Liang, L. Wu, P. Shen, C. Tseng
XiaMen Tianma Microelect., China

Author Interviews

18:20 – 18:50

Friday, December 9

9:00 - 10:05

412

LCT5: Novel LC Applications

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

LCT5 - 1: 9:00 ***Invited* Power Generating LCD for Advanced Energy-Harvesting Applications**
Y. H. Huh, H. G. Jeon, I.-G. Bae, B. Park
Kwangwoon Univ., Korea

LCT5 - 2 9:25 **Light Shutter Based on Electro-Hydrodynamic Effect in LCs Doped with TBAB**
J.-W. Huh, J.-H. Kim, S.-M. Ji, B.-H. Yu, T.-H. Yoon
Pusan Nat. Univ., Korea

LCT5 - 3 9:45 **Tunable Optical LC Deflector and Lens with Fresnel Structure**
G. Shibuya, S. Yamano, H. Yoshida, M. Ozaki
Osaka Univ., Japan

----- Break -----

10:40 - 12:00

412

LCT6: Quality of LCDs

Chair: B. Park, Kwangwoon Univ., Korea
 Co-Chair: S. Shibahara, Sony Visual Products, Japan

LCT6 - 1 **Method to Evaluate and Improve Photodegradation**
10:40 **By-products of Photo Alignment Material**

*Y. Zhao, C.-C. Hsieh, Y. Song, W. Ren, C. Yuan, C.-Y. Chiu,
 C.-Y. Lee*

Shenzhen China Star Optoelect. Tech., China

LCT6 - 2 **On the Black Level Luminance for Oblique Viewing**
11:00 **Angle Due to Diffractions in LCDs**

A. Yuuki, T. Tsuchiya, K. Yonemura, Y. Niwano

Mitsubishi Elec., Japan

LCT6 - 3 **Method for Eliminating Color Filter Related Mura of**
11:20 **Near-Eye Display**

B. Zheng, Y. Lin, Y. Yang, L. Wu, P. Shen, C. Tseng

XiaMen Tianma Microelect., China

LCT6 - 4 **Correlation Analysis of Flicker Shift Phenomenon**
11:40 **and Ion Accumulation Mechanism in FFS Mode LCD**
Panel

*K.-T Huang, Y.-W. Hung, R.-X. Fang, Y.-T. Chao, T. Lee,
 C. Lee, S.-C. Lin, C. Kuo, T.-S. Jen*

HannStar Display, Taiwan

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:35

412

LCT7: High Performance LC Mode

Chair: T. Ishinabe, Tohoku Univ., Japan
 Co-Chair: F. Araoka, RIKEN, Japan

LCT7 - 1: *Invited* Photo-Alignment and N-FFS LCD
13:30 **Technologies for Low Refresh Rate Driving**

*I. Miyake, H. Asagi, M. Shimizu, K. Matsumoto,
 Y. Nishihara, Y. Hashimoto, T. Matsushita, S. Shimada,
 Y. Ito*

Sharp, Japan

LCT7 - 2
13:55

Fast In-Plane Switching of LC Aided by Two Dimensional Confinement with Virtual Walls

T.-H. Choi, S.-W. Oh, Y.-J. Park, Y. Choi, T.-H. Yoon
Pusan Nat. Univ., Korea

LCT7 - 3
14:15

Polymer-Stabilized Blue Phase LCD with Enhancement Double Sided Protrusion Electrodes

Z.-F. Su, T.-C. Chung, C.-T. Liao, C.-M. Yu, Y.-B. Qiao
Infovision Optoelect., China

----- Break -----

Author Interviews

16:30 – 17:10

Evening Get-Together with Wine

Tuesday, Dec. 6, 2016

18:00 – 20:00

RACONTER (1F)

Fukuoka International Congress Center

(Sponsored by Merck Ltd., Japan)

See page 14 for details

Reception

Wednesday, Dec. 7, 2016

19:00 – 21:00

Crowne Grand Ball Room (2F)

ANA Crowne Plaza Fukuoka

See page 14 for details

Workshop on Active Matrix Displays

Wednesday, December 7

13:00 - 14:25

409

AMD1: Oxide TFT: High-Stability TFTs Special Topics of Interest on Oxide-Semiconductor TFT

Chair: J. Jang, Kyung Hee Univ., Korea

Co-Chair: H. Kumomi, Tokyo Tech, Japan

AMD1 - 1: *Invited* Importance of Oxygen- and Hydrogen-Related Defects to Develop New Amorphous Oxide Semiconductor Materials

13:00

T. Kamiya, J. Kim, K. Ide, H. Kumomi, H. Hosono

Tokyo Tech, Japan

AMD1 - 2 Electrical Characteristics of Si-Doped IGZO TFTs Fabricated Using Ion Implantation

13:25

T. Goto, F. Imaizumi, S. Sugawa

Tohoku Univ., Japan

AMD1 - 3 High Reliability Fluorine-Containing Polysilsesquioxane Passivation Layer for a-InGaZnO Thin-Film Transistors

13:45

N. Yoshida^{,**}, J. P. Bermundo^{**}, Y. Ishikawa^{**}, T. Nonaka^{*}, K. Taniguchi^{*}, Y. Uraoka^{**}*

^{}Merck Performance Materials Manufacturing G.K., Japan*

*^{**}NAIST, Japan*

AMD1 - 4 Achievement of High-Performance and Environmentally Stable TFTs by Introducing Hybrid-Phase Microstructure into InSnZnO Channels

14:05

S. Deng, R. Chen, G. Li, Z. Xia, K. Wang^{}, M. Zhang, W. Zhou, M. Wong, H.-S. Kwok*

Hong Kong Univ. of S&T, Hong Kong

^{}Jinan Univ., China*

----- Break -----

Final Program

The final program of IDW/AD '16 will be available on the website (<http://www.idw.or.jp/>) from the middle of November

14:40 - 16:15

409

AMD2: Oxide TFT: High-Performance TFTs
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: T. Kamiya, Tokyo Tech, Japan

Co-Chair: H. Hamada, Kinki Univ., Japan

AMD2 - 1: Invited High Yield, High Drain Current Oxide TFTs for Display Manufacturing

14:40

*J. Jang, J. K. Um, S. Lee**Kyung Hee Univ., Korea*

AMD2 - 2: Invited Self-Aligned High Mobility Oxide TFT with SiN_x/Al₂O₃ Gate Insulator

15:05

*Y. Kim, G. Mun, K. Park, S.-H. K. Park**KAIST, Korea*

AMD2 - 3: Invited Boosting the Field-Effect Mobility of Metal Oxide Thin Film Transistor by a Microstructure Modification

15:30

*J. K. Jeong, Y. Shin, S. T. Kim, I. J. Chung**Hanyang Univ., Korea*

AMD2 - 4 Double-Channel Oxide Semiconductor Vertical TFTs with Mo Source/Drain Layer

15:55

*C.-S. H. Hwang, J. H. Choi, S. H. Cho, J.-H. Yang, J.-E. Pi, O.-S. Kwon, E.-S. Park, H.-O. Kim, S.-H. K. Park***ETRI, Korea***KAIST, Korea*

----- Break -----

16:20 - 17:50

409

AMD3: High-Resolution Displays
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: S.-H. K. Park, KAIST, Korea

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

AMD3 - 1: Invited Advanced OLED Display Technologies for Large-Size UHD OLED TVs

16:20

*H. J. Shin, S. Takasugi, H. S. Kim, C. H. Oh**LG Display, Korea*

AMD3 - 2: Invited LCD with Ultra High Resolution and Super Fast Response Giving Super Reality to VR Application

16:45

*N. Noguchi, N. Ueda, K. Okada, K. Yamamoto, K. Yamamoto, S. Uchida, H. Yoshida, M. Murata**Sharp, Japan*

AMD3 - 3 **12.5-in. Real RGB Pixel High 4K Resolution a-Si TFT-LCD with Advanced Design to Reduce the Loss of High-Frequency Data Signal**

17:10

*S.-Y. Wu, C.-C. Chang, H.-H. Chen, H.-M. Su, W.-Z. Zeng
Chunghwa Picture Tubes, Taiwan*

AMD3 - 4 **19.5-in. 4K LCD Fabricated with Novel LTPS Technology at Gen10 Line**

17:30

*N. Nodera, S. Ishida, T. Matsumoto, K. Kobayashi
Sakai Display Prods., Japan*

Author Interviews

17:50 – 18:20

Thursday, December 8

14:10 - 16:40

Multipurpose Hall

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

AMDp1 - 1 **AC Stress Stability Study with Different Channel Length in BCE IGZO TFT for 32-in. 8K4K GOA LCD**

*L.-Q. Shi, S.-J. Chen, Y.-F. Chou, L.-M. Zeng, T.-H. Wang,
W.-Y. Li, X.-W. Lv, R.-L. Chen, C.-W. Liao, S.-M. Ge,
M. Wang, C. K. Zhang, C.-Y. Chiu, X. Liu, C.-Y. Lee
Shenzhen China Star Optoelect. Tech., China*

AMDp1 - 2 **Bias and Temperature Reliability of Amorphous Indium Tin Zinc Oxide Thin Film Transistor on SiO₂, SiN_x Gate Dielectric**

*S. Kim, B. Choi
Sungkyunkwan Univ., Korea*

AMDp1 - 3 **Low-Power Gate Driver Circuit Using Depletion Mode a-IGZO TFTs**

J.-H. Kim, S. Wang, J. Oh, Y.-S. Kim, K. Park
Sungkyunkwan Univ., Korea
Konkuk Univ., Korea

AMDp1 - 4 **Effects of Activation Annealing on the Reliability of Indium-Gallium-Zinc Oxide Thin-Film Transistors with Thermal Induced Source/Drain Regions**

*J. Li, L. Lu, Z. Feng, H. S. Kwok, M. Wong
Hong Kong Univ. of S&T, Hong Kong*

- AMDp1 - 5 Low Subthreshold Swing InGaZnO Thin Film Transistors with UV-Ozone-Treated BaTiO₃ Dielectric Layers**
H.-Y. Liou, A.-H. Cheng, S.-Y. Chu
Nat. Cheng Kung Univ., Taiwan
- AMDp1 - 6 High Mobility Thin Film Transistors Formed by Metal-Induced Crystallization of Amorphous Zinc Tin Oxide Semiconductors**
S. T. Kim, K. J. Lee, N. On, H. J. Seul, J. K. Jeong
Hanyang Univ., Korea
- AMDp1 - 7 Structure Engineering with ZrO₂ Thin Film for Highly Conducting Electrospun In₂O₃ Nanowire Field Effect Transistors**
H. Park, I. Lee, Y. H. Kim, B.-S. Bae
KAIST, Korea
- AMDp1 - 8 New p-Type Thin-Film Transistor**
K. Lee, S. Kim, H. Seul, N. On, J. Jeong
Hanyang Univ., Korea
- AMDp1 - 9 De-Mux Circuit on the FFS-Mode LCD with a-IGZO TFTs**
Y.-K. Chen, C.-C. Tsai, E.-C. Liu, K.-Y. Lai, Y.-H. Chen, S.-C. Chiang, F.-C. Lu, Y.-J. Lu, W.-K. Tsao, C.-H. Huang, Y.-Y. Huang
Chunghwa Picture Tubes, Taiwan
- AMDp1 - 10 New AMOLED Pixel Circuit with Concise 3-T Structure for Normally-off and Normally-on Amorphous IGZO TFTs**
P.-S. Chen, C.-L. Lee, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan
- AMDp1 - 11 Inkjet-Printed InGaZnO Thin Film Transistor on Flexible Substrate**
H. Hu, H. Huang, F. Li, T. Guo
Fuzhou Univ., China
- AMDp1 - 12 Investigation of Annealing Temperature and Atmosphere Effect on Solution Process ZTO Transistors with Different Metal Composite Doping**
N. X. He, W. X. Cheng, W. A. Cheng, S. J. Cheng, Y. W. Wang
Nat. Chagnhua Univ. of Education, Taiwan

14:10 - 16:40

Multipurpose Hall

Poster AMDp2: Active-Matrix Devices**AMDp2 - 1 Organic Thin-Film Transistors Integrated Gate Driver Circuits for Low Power Consumption in Panel Application**

G.-T. Zheng, P.-T. Liu*, L. Quan*, S.-I. Lin**, Y.-C. Chang**,
C.-Y. Liu**, A. Facchetti**

Nat. Tsing Hua Univ., Taiwan

*Nat. Chiao-Tung Univ., Taiwan

**Polyera Taiwan, Taiwan

AMDp2 - 2 Robust Driving Method for Integrated Shift Register with Self-Total Resetting

G. Shang*, M. Han*, S. Han*, H. Zheng*, X. Yao*,
Y. Zhang**, L. Yuan*, Z. Wang*, Y. Im*, J. Lv*, Y. Huang*,
H. Qiu**, J. Jun*, X. Dong*

*BOE Tech. Group, China

**Chongqing BOE Optoelect., China

AMDp2 - 3 Amorphous Silicon 2-in. High Resolution Smart Watch with GIP

Y.-H. Tai, W.-L. Sung, P.-S. Cheng, W.-C. Wang, C.-L. Kuo,
Y.-H. Chang, W.-C. Wang

Chunghwa Picture Tubes, Taiwan

AMDp2 - 4 New 4T1C Pixel Compensation Circuit for AMOLED Display

H. Zhu, S. Hu, X. Gao, X. Huang

Kunshan New Flat Panel Display Tech. Ctr., China

AMDp2 - 5 LTPS Pixel Circuit for AMOLED Display

J. Zhang, H. Zhu, S. Hu, N. Yang, Y. Song, T. Zhang, X. Gao,
X. Huang

Kunshan New Flat Panel Display Tech. Ctr., China

AMDp2 - 6 New 3T2C LTPS Pixel Circuit Compensate for Threshold Voltage Variation for AMOLED Displays

M.-Y. Deng, Y.-T. Liu, C.-M. Lu, C.-L. Lin

Nat. Cheng Kung Univ., Taiwan

AMDp2 - 7 Effect of Hydrogen Annealing of Si TFTs with Metal Source/Drain Using BLDA

T. Harada, F. Gakiya, T. Ashitomi, T. Okada, T. Noguchi,
O. Nishikata*, A. Ota*, K. Saito*

Univ. of the Ryukyus, Japan

*ULVAC, Japan

AMDp2 - 8 Anomalous Threshold Voltage Variation in Low-Temperature Polycrystalline-Silicon Thin-Film Transistors under Self-Heating Stress

L. F. Zhang, Y. J. Hsu, Y. C. Wu, P. Y. Lu

Shenzhen China Star Optoelect. Tech., China

AMDp2 - 9 New Cu-Alloy Cap Layer with Anti-Oxidation Property for Cu Interconnections

Y. Shida, H. Goto, H. Okuno, J. Nakai*, M. Kanamaru**

Kobe Steel, Japan

**Kobelco Res. Inst., Japan*

AMDp2 - 10 Method for Optimizing Gamma Parameters for AMOLED Displays

L. Ding, H. Zhu, X. Zhang, X. Gao, X. Huang

Kunshan New Flat Panel Display Tech. Ctr., China

----- Break -----

16:50 - 18:20

409

**AMD4/LCT4: Super-High-Resolution LCDs
Special Topics of Interest on Oxide-Semiconductor TFT**

Chair: M. Inoue, Huawei Techs., Japan

Co-Chair: M. Inoue, Apple, Japan

**AMD4/
LCT4 - 1: Invited 510 ppi 8K4K LTPS-TFT LCD with 30 Hz to 120 Hz Frame-Rate Driving**

16:50

H. Miki, D. Suzuki, M. Okita, K. Mochizuki, H. Hayashi, T. Nakamura, H. Kato, A. Oyama, Y. Matsui, K. Nishiyama, H. Kimura

Japan Display, Japan

**AMD4/
LCT4 - 2: Invited Development of a 27-in. 8K4K LCD Prototype Using an IGZO TFT Backplane**

17:15

S. Yamada, F. Shimoshikiryoh, Y. Itoh, A. Ban

Sharp, Japan

**AMD4/
LCT4 - 3: Development of Cu BCE-Structure IGZO TFT for High ppi 32-in. 8K4K LCD**

17:40

S.-M. Ge, S. Li, S.-J. Chen, X.-Y. Kong, W. Shi, H.-J. Zhang, Y.-H. Meng, L.-Q. Shi, X. Liu, M. Wang, C. K. Zhang, C.-Y. Chiu, C.-Y. Lee

Shenzhen China Star Optoelect. Tech., China

AMD4/ LCT4 - 4 **Fast-Response Fringe Field Switching LCD for Virtual Reality**
18:00 *L. Fang, Y. Chen, Y. Liang, L. Wu, P. Shen, C. Tseng*
XiaMen Tianma Microelect., China

Author Interviews

18:20 – 18:50

Friday, December 9

9:00 - 10:10	409
AMD5: Organic TFTs	

Chair: H. Klauk, Max Planck Inst., Germany

Co-Chair: H. Minemawari, AIST, Japan

AMD5 - 1: Invited Organic-Inorganic Perovskite Field-Effect Transistors
9:00

T. Matsushima^{,**}, S. Hwang^{*}, A. S. D. Sandanayaka^{*,**},
 C. Qin^{*,**}, S. Terakawa^{*}, T. Fujihara^{***}, M. Yahiro^{***},
 C. Adachi^{*,**,*}*

^{}Kyushu Univ., Japan*

*^{**}JST, Japan*

*^{***}Info. Techs. & Nano-techs., Japan*

*^{****}Int. Inst. for Carbon Neutral Energy Res., Japan*

AMD5 - 2: Invited Fundamental Technology for Organic Transistors and Their Application to Sensor Devices
9:25

M. Kitamura

Kobe Univ., Japan

AMD5 - 3 Direct Photo-Patterning and High Mobility Materials for Flexible OTFTs for Advanced Processing
9:50

D. Kaelblein, F. G. Brunetti, R. Pretot^{}, P. Hayoz^{*}, M. Zhou,
 J. Brill, K. Exner^{**}*

BASF SE, Germany

^{}BASF Schweiz, Switzerland*

*^{**}BASF New Business, Germany*

----- Break -----

10:40 - 11:30

409

AMD6: Flexible Devices

Chair: M. Kitamura, Kobe Univ., Japan

Co-Chair: Y. Fujisaki, NHK, Japan

AMD6 - 1: Invited Flexible TFT and Devices Manufacturing Using Advanced Printed Electronics Technology

10:40

T. Kamata^{,**}, M. Yoshida^{*}, S. Uemura^{*}, K. Suemori^{*}, S. Nishi^{**}, Y. Mishima^{**}**^{*}AIST, Japan**^{**}JAPER, Japan***AMD6 - 2: Invited Megahertz Organic Thin-Film Transistors for Flexible Active-Matrix Displays**

11:05

*H. Klauk**Max Planck Inst., Germany***Author Interviews**

12:00 – 12:40

----- Lunch -----

13:30 - 14:35

409

**AMD7: Oxide TFT: Solution-Processed TFTs
Special Topics of Interest on Oxide-Semiconductor TFT**

Chair: T. Kamata, AIST, Japan

Co-Chair: H. Kumomi, Tokyo Tech, Japan

AMD7 - 1: Invited Large-Scale Printed Sol-Gel Metal Oxide Dielectrics

13:30

*W.-J. Lee, S. Park, M.-H. Yoon**Gwangju Inst. of S&T, Korea***AMD7 - 2 Uniform Large-Area Slot-Die Coating of Soluble Metal Oxide Semiconductor towards Mass Production of High-Performance TFT Backplanes**

13:55

I. Katsouras^{}, J. Maas^{*}, J.-L. van der Steen^{*}, G. Gelinck^{*,**}, R. Takata^{***}, M. Marinkovic^{***}, A. Neumann^{***}, D.-V. Pham^{***}, R. Anselmann^{***}, T. H. Ke^{****}, S. Smout^{****}, S. Schols^{****}**^{*}Holst Ctr., The Netherlands**^{**}Eindhoven Univ. of Tech., The Netherlands**^{***}Evonik Resource Efficiency, Germany**^{****}imec, Belgium*

AMD7 - 3 **5.8-in. Ultra-Narrow Border LCD with Soluble Metal-Oxide TFTs and Integrated with GIP Circuit**
14:15

*W.-K. Tsao, S.-C. Chiang, Y.-H. Chen, D.-C. Wu,
 K.-H. Tseng, Y.-H. Lin, H.-M. Chang, Y.-Y. Huang,
 D.-V. Pham*, K.-H. Su*, M. Marinkovic*, D. Weber*,
 A. Merkulov*, R. Anselmann**

Chunghwa Picture Tubes, Taiwan

**Evonik Resource Efficiency, Germany*

----- Break -----

15:10 - 16:35

409

AMD8: Oxide TFT: Novel Processes and Applications
Special Topics of Interest on Oxide-Semiconductor TFT

Chair: M.-H. Yoon, Gwangju Inst. of S&T, Korea

Co-Chair: N. Morosawa, Samsung Display, Korea

AMD8 - 1: *Invited* Transparent and Flexible Memory Thin-Film Transistors Using Oxide Semiconductors
15:10

*S.-M. Yoon, S.-J. Kim, D.-J. Yun, M.-J. Park, W.-H. Lee,
 G.-H. Seo*

Kyung Hee Univ., Korea

AMD8 - 2 **Narrow-Pitch Low-Voltage-Driven and High-Speed Gate Driver with BA-IGZO TFTs for High-Resolution and Narrow-Bezel Displays**
15:35

H. Seo, D. Geng, J. Jang

Kyung Hee Univ., Korea

AMD8 - 3 **Novel Back-Channel-Etch Type In-Ga-Zn-Sn-O Thin Film Transistor with 4-Mask Technology**
15:55

J. Li, X. Hu*, Y. Zhai*, H. Yu*, J. Liu*, T. Sun*, S. Qin*, C. Lee*,
 F. Wang****

**Shenzhen China Star Optoelect. Tech., China*

***TCL Corporate Res., China*

AMD8 - 4 **High Density Plasma Sputtered InZnSnO Thin-Film Transistors Fabricated by Back-Channel Etching Method on Flexible Polyimide Substrate**
16:15

*S. H. Cho, H.-O. Kim, O.-S. Kwon, E. S. Park, J.-H. Yang,
 J.-E. Pi, J. H. Choi, K. I. Cho, C.-S. Hwang, J.-R. Lee*,
 J.-C. Do*, W.-W. Park*, Y.-S. Roh**

ETRI, Korea

**AVACO, Korea*

Author Interviews

16:35 – 17:10

Supporting Organizations:

Technical Committee on Electronic Information Displays, Electronics Society, IEICE

Thin Film Materials & Devices Meeting

Workshop on FPD Manufacturing, Materials and Components

Wednesday, December 7

13:00 - 14:20

413

FMC1: Film Technologies

Chair: R. Yamaguchi, Akita Univ., Japan

Co-Chair: I. Amimori, A51Tech, Japan

FMC1 - 1: *Invited* Temperature-Independent Zero-Zero-Birefringence Polymers for Optical Films

13:00

*A. Tagaya, M. Shikanai, H. Nagahama, Y. Koike
Keio Univ., Japan*

FMC1 - 2 Control of Three Dimensional Birefringence of Uniaxial Oriented Film by Using Smectite Nanoparticle

13:20

K. Takatoh, M. Kobayashi, K. Yonehara, T. Abo
Tokyo Univ. of Sci., Yamaguchi, Japan
Kaneka, Japan

FMC1 - 3 Improvement of Display Unevenness of Display Device by Reduction of Shrinkage of Polarizing Film

13:40

*M. Kato, S. Murayama, K. Ikeshima, Y. Nakano
Nitto Denko, Japan*

FMC1 - 4 Development of High Contrast Achromatic Dye-Type Polarizer Using New Dichroic Dye Systems

14:00

N. Mochizuki, T. Higeta, Y. Hattori, N. Nakamura, N. Koma,
J. Toda*, T. Ishinabe**, H. Fujikake**
Nippon Kayaku, Japan
*Polatechno, Japan
**Tohoku Univ., Japan*

----- Break -----

14:40 - 16:00

413

FMC2: Display Optics and Information Technologies

Chair: K. Kälantär, Global Optical Solutions, Japan

Co-Chair: H. Yamamoto, Utsunomiya Univ., Japan

FMC2 - 1: *Invited* Color Rendering in Holographic Waveguide Display System

14:40

*Z. Shen, Y. Zhang, Y. Weng, X. Li, Y. Tu
Southeast Univ., China*

- FMC2 - 2** **Preventing Surface Reflected Light on Retro-Reflector in AIRR**
 15:00
R. Kujime^{} **, H. Yamamoto^{**}*
^{*}Tokushima Univ., Japan
^{**}Utsunomiya Univ., Japan
- FMC2 - 3** **Development of Wide Viewing VA-LCD System by Utilizing Microstructure Film**
 15:20
S. Ochi, Y. Asaoka, T. Nango, Y. Tsuda
 Sharp, Japan
- FMC2 - 4:** **Invited Mechanism of Optical Vortex Generation from Self-Assembled TFCD Array in Smectic LC and TFCD Application to Optical Devices**
 15:40
K. Kälántär
 Global Optical Solutions, Japan

----- Break -----

16:20 - 17:40

413

FMC3: Manufacturing Technologies

- Chair: T. Tomono, Toppan Printing, Japan
 Co-Chair: K. Kurokawa, Nihon Entegris, Japan
- FMC3 - 1** **Sixth Generation Half Size Linear Source for AMOLED Mass Production**
 16:20
S. M. Kim, D. J. Ji, H. Seo, E. S. Jung, Y. H. Na
 YAS, Korea
- FMC3 - 2** **Integrated System of LCD Factory Service Automation**
 16:40
W.-C. Chiu, C.-W. Wu, Y.-C. Chu, C.-L. Lin
 Nat. Cheng Kung Univ., Taiwan
- FMC3 - 3** **New Formation of Multi-Layered n+ Silicon Films for Image Sticking Improvement in 55-in. HVA TV Product**
 17:00
X. Lyu, Y. Meng, S.-J. Chen, X. Liu, C. Liao
 Shenzhen China Star Optoelect. Tech., China
- FMC3 - 4** **Improvement on Two-Wet and Two-Dry Method in Four Mask Process of G8.5 LCDs**
 17:20
X. D. Liu, X. Liu, C. Y. Lee, M. Zeng, L. M. Zeng, J. X. Xie, Y. F. Yang, D. Luo, F. Long, X. Y. Kong, C. W. Liao, Z. W. Tan
 Shenzhen China Star Optoelect. Tech., China

Author Interviews

17:40 – 18:20

Thursday, December 8

9:00 - 10:20

413

FMC4: Standardization on Printed Electronics
Special Topics of Interest on Printed Electronics

Chair: K. Käläntär, Global Optical Solutions, Japan

Co-Chair: Y. Inoue, Corning Japan, Japan

FMC4 - 1: *Invited* Standardization Activities on Printed Electronics of IEC TC 119

9:00

K. Suganuma, S. Maeda^{*}^{**}*Osaka Univ., Japan*^{*}*Chem. Materials Evaluation & Res. Base, Japan*^{**}*Mitsubishi Chem., Japan*

FMC4 - 2: *Invited* Overview of Standardization Activities for Stretchable Materials in IEC TC 119, Printed Electronics

9:20

S. Maeda

Toyobo, Japan

FMC4 - 3: *Invited* World First International Standard for Printed Electronics Materials

9:40

C. Sekine, M. Oda^{*}, S. Maeda^{**}, T. Sato^{***}*Sumitomo Chem., Japan*^{*}*Japan Advanced Printed Elect. Tech. Res. Assn., Japan*^{**}*Toyobo, Japan*^{***}*Fujifilm, Japan*

FMC4 - 4: *Invited* Standardization Activities on Printed Electronics Devices in IEC TC 119

10:00

T. Minakata, K. Hyodo^{*}*Asahi Kasei, Japan*^{*}*Konica Minolta, Japan***Author Interviews**

10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

Poster FMCp1: FPD Manufacturing, Materials and Components

FMCp1 - 1 Mechanism of TFT-LCD RGB Photoresist Wrinkle and Improvement Strategies

J. Li, X. Yu, M. Tang, Y. Zeng, H. H. Chen

Shenzhen China Star Optoelect. Tech., China

- FMCP1 - 2** **Effect of Sintering Temperature on Piezoelectric and Ferroelectric Properties of NKLNTS Based Ceramics for Energy Harvesting Applications**
S.-M. Huang, H.-R. Chen^{}, Y.-D. Juang^{*}, Y.-C. Lin, S.-Y. Chu, C.-C. Tsai^{**}, C.-S. Hong^{***}*
Nat. Cheng Kung Univ., Taiwan
^{*}*Nat. Tainan Univ., Taiwan*
^{**}*Tung Fang Design Inst., Taiwan*
^{***}*Nat. Kaohsiung Normal Univ., Taiwan*
- FMCP1 - 3** **Performance and Reliability Improvements of Flexible LTPS-TFTs with Pre-GI Treatment**
B.-Y. Su, T.T.-J. Wang, T.-C. Chang, M.-J. Yang, S.-A. Yan
ITRI, Taiwan
- FMCP1 - 4** **Design of White Light LED for Multi-View Angle Display Application**
Y.-M. Weng, C.-C. Chiu, F.-L. Hsiao
Nat. Changhua Univ. of Education, Taiwan
- FMCP1 - 5** **Comparison of Divergence Angle of Retro-Reflectors for Aerial Imaging by Retro-Reflection**
K. Onuki^{}, N. Kawagishi^{**}, H. Yamamoto^{*}*
^{*}*Utsunomiya Univ., Japan*
^{**}*Yazaki, Japan*
- FMCP1 - 6** **LTPS-TFT LCD with Ultra-Slim Border (0.15 mm)**
B. P. Liu, J. Y. Yan, X. F. Zhou, Y. S. Huang, Y. F. Tang, X. A. Xu, X. X. Wu, S. J. Cai, B. P. Shen, Q. Z. Chen, J. Y. Li, Z. H. Zeng
XiaMen Tianma Microelect., China
- FMCP1 - 7** **Research on Pellicles for DUV Exposure to Improve CD Uniformity**
T. Oyanagi, M. Ando, Y. Nagai, M. Hakko, N. Yabu, N. Izumi, K. Nagano
Canon, Japan

10:30 - 13:00

Multipurpose Hall

Poster FMCP2: Oxide TFT Manufacturing
Special Topics of Interest on Oxide-Semiconductor TFT

- FMCP2 - 1** **Influence of Oxygen Ratio in Gate Bias Instability of Amorphous InGaZnO Thin Film Transistor**
N. On, H. Seul, S. Kim, K. Lee, J. Jeong
Hanyang Univ., Korea

FMCp2 - 2 Structural Characteristics of Nickel-Zinc Oxide Nanostructures

*Y. Yoshihara, K. H. Kim, Y. Abe, M. Kawamura, T. Kiba
Kitami Inst. of Tech., Japan*

FMCp2 - 3 Soluble-Processed SiO₂ Gate Insulator Fabrication via Deep UV Curing for Amorphous Oxide Transistors

*H. Seul, N. On, K. Lee, S. Kim, J. Jeong
Hanyang Univ., Korea*

----- Lunch -----

16:50 - 18:10

412

FMC5/FLX2: Manufacturing and Equipment

Chair: A. Fujita, JNC, Japan
Co-Chair: M. Ito, Toppan Printing, Japan

FMC5/ FLX2 - 1: Invited Development of the Flexible Surface Light Source Using Luminous Array Film Technology

16:50

K. Awamoto, H. Hirakawa, J. Takahashi, T. Hidaka*,
T. Shinoda*

*Shinoda Plasma, Japan
Shikoh Tech LLC, Japan

FMC5/ FLX2 - 2 Fabrication of Thin-Film Coatings on Large Size Ultrathin Glass for Flexible Devices

17:10

M. Jungphaehnel, T. Preussner, J. Westphalen

Fraunhofer Inst., Germany

FMC5/ FLX2 - 3 Cutting Method for Electronic Device Made Using Ultrathin Glass

17:30

N. Inayama

Nippon Elec. Glass, Japan

FMC5/ FLX2 - 4 Direct Imaging Exposure Equipment with High Overlay Accuracy for Flexible Substrate in Roll-to-Roll Method

17:50

*Y. Kito, M. Hori, Y. Hayashida, T. Suzuki, H. Komiyama,
T. Watanabe, T. Kurashige, M. Kato, K. Nara*

Nikon, Japan

Author Interviews

18:10 – 18:50

Friday, December 9

13:30 - 14:50

502

FMC6: Materials and Components

Chair: T. Tsuzuki, NHK, Japan

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

FMC6 - 1: Invited Reflective Displays - Are Phase Change Materials the New Modulator?

13:30

P. Hosseini, C. Rios, H. Bhaskaran***Bodle Techs., UK***Univ. of Oxford, UK***FMC6 - 2 Thin Film Organic Photodiodes on CMOS Materials Structured via Orthogonal Photolithography for Sensor Applications**

13:50

*M. Jahnel, M. Schober, K. Fehse, O. R. Hild, U. Vogel**Fraunhofer Inst., Germany***FMC6 - 3 Investigation of Copper Metallization with New Titanium Barrier Layer**

14:10

*J. H. Seo**, B. O. Kim*, J. H. Kim****Korea Aerospace Univ., Korea****Cuprum Tech., Korea***FMC6 - 4 (100) Textured LTPS Film by Single Scanning CW Laser Lateral Crystallization and Effect of Crystallization Conditions on Grain-Boundaries**

14:30

N. Sasaki, Y. Nieda, D. Hishitani*, M. Arif*, Y. Uraoka***Sasaki Consulting, Japan***NAIST, Japan*

----- Break -----

Author Interviews

16:30 – 17:10

Supporting Organizations:

Japan Electronics Packaging and Circuits Association

Japan Society of Colour Material

The Japanese Research Association for Organic Electronics Materials

The Japanese Society of Printing Science and Technology

RadTech Japan

The Society of Photography and Imaging of Japan

The Technical Association of Photopolymers, Japan

Workshop on Inorganic Emissive Display and Phosphors

Wednesday, December 7

16:20 - 17:30

502

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

Chair: J. Silver, Brunel Univ. London, UK

Co-Chair: T. Kusunoki, Dexerials, Japan

PH1 - 1: Invited Highly Efficient Laser Spotlight Illuminator with a Novel Check-Patterned Phosphor Structure

16:20

K. Morimoto, Y. Nagasaki, K. Okuyama, T. Miwa^{},
 A. Takamori^{**}, T. Tanaka*

Panasonic AIS, Japan

^{}IDEC, Japan*

*^{**}Osaka Univ., Japan*

PH1 - 2 Improvement of Photodegradation of Nitridosilicate Phosphors by Composition Change and Realization of High CRI White-LEDs

16:50

M. Kanno, M. Abe, T. Kusunoki

Dexerials, Japan

PH1 - 3 Commercialized, Narrow Band, Red Emitting Phosphors for Wide Color Gamut Display Applications and LED Lighting

17:10

*S. P. Sista, F. Garcia-Santamaria, J. E. Murphy, A. Setlur,
 P. N. Kumar^{*}, D. G. Porob^{*}, J. M. Baldesare^{**},
 W. W. Beers^{**}, A. I. Chowdhury^{**}, W. E. Cohen^{**}, F. Du^{**},
 C. D. Nelson^{**}*

GE Global Res., USA

^{}GE Global Res., India*

*^{**}GE Lighting, USA*

Author Interviews

17:40 – 18:20

Thursday, December 8

14:10 - 16:40

Multipurpose Hall

Poster PHp1: Phosphors for Lighting Application
Special Topics of Interest on Lighting and Quantum Dot Technologies

PHp1 - 1 New Structure of Phosphor Layer in pc-WLEDs Package for Optical Properties Improving

PHp1 - 1

L.-F. Nien, T.-S. Zhan, S.-Y. Chu

Nat. Cheng Kung Univ., Taiwan

- PHp1 - 2** **Structural Equation Approach for Designing of LED Cup Reflector and the Future Prospect**
C.-J. Ou, Z.-W. Huang, Y.-J. Hsu, C.-R. Ho
Hsiuping Univ. of S&T, Taiwan
- PHp1 - 3** **Electron Emission Properties of Cold Cathode Based on Silicon-Rich Silicon Dioxide Films Prepared by Magnetron Reaction Sputtering**
W. Zhao, M. Zhou, W. Hu
Xi'an Jiaotong Univ., China
- PHp1 - 4** **Synthesis and Luminescence Properties of Novel Eu²⁺-Doped BaGa₂SiS₆ and Ba₂Ga₈SiS₁₆ Thiogallate Phosphors for White LEDs**
S. P. Lee, S. D. Liu, T. M. Chen
Nat. Chiao Tung Univ., Taiwan
- PHp1 - 5** **Rare-Earth-Free Organic-Inorganic Hybrid Phosphor Made from APTES for White Light LED Application**
K. Hasegawa, K. Komatsu, A. Kato
Nagaoka Univ. of Tech., Japan
- PHp1 - 6** **Eu Concentration Dependence of Morphology and Emission Characteristics of Y₂WO₆:Eu Nano-Rod Phosphor**
S. Matsumoto, R. Kanai, M. Kimura, A. Kato
Nagaoka Univ. of Tech., Japan

14:10 - 16:40

Multipurpose Hall

Poster PHp2: Phosphors for General

- PHp2 - 1** **Synthesis and Properties of Luminescent Polymer-Silica Multilayer Encapsulated Perovskite Quantum Dots for Photoelectronic**
S. D. Liu, S. P. Lee, T. M. Chen
Nat. Chiao Tung Univ., Taiwan
- PHp2 - 2** **Controllable Synthesis of Quantum Rods with Different Length to Diameter Ratio by a Seeded Growth Method**
J. Hao, J. Qin, W. Chen, D. Wang, B. Xu, K. Wang
Southern Univ. of S&T, China
- PHp2 - 3** **Down-Conversion Luminescence with CdSe-Based Quantum Dots**
B. K. Kim, D. Jo, H. Chung, H. Chae
Sungkyunkwan Univ., Korea

- PHp2 - 4** **Effect of Thiophenol-Based Ligands on Quantum Dot Light Emitting Diodes (QLEDs)**
H. Moon, W. Lee, H. Chung, H. Chae
Sungkyunkwan Univ., Korea
- PHp2 - 5** **RoHS-Compliant and High Efficiency QD Backlight for BT.2020 LCD**
J. Fan, K. Hsiao, R. C. Chien, J. J. Wu
Shenzhen China Star Optoelect. Tech, China

----- Break -----

16:50 - 18:10	503
PH2: Phosphors for General	

Chair: H. Zhong, Beijing Inst. of Tech., China
 Co-Chair: R.-J. Xie, NIMS, Japan

- PH2 - 1:** ***Invited* Light Emission from Solution-Processed High Quality Semiconductor Nanomaterials: Nanoparticles and Perovskites**
16:50
Y. Kanemitsu
Kyoto Univ., Japan
- PH2 - 2:** ***Invited* Halide Perovskite Quantum Dots: New Generation Materials for Display Applications**
17:20
Q. Zhou, Z. Bai, F. Zhao, Q. Pei*, H. Zhong*
Beijing Inst. of Tech., China
**Univ. of California, USA*
- PH2 - 3** **Versatile Measuring Method of the Quantum Yield of Phosphor Systems with High and Low Photoluminescence**
17:50
J. Silver, T. G. Ireland, G. R. Fern, D. den Engelsen
Brunel Univ. London, UK

Author Interviews

18:10 – 18:50

Supporting Organizations:

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

Workshop on OLED Displays and Related Technologies

Wednesday, December 7

13:00 - 14:20

501

OLED1: OLED Displays

Chair: T. Ikuta, JNC Petrochem., Japan

Co-Chair: T. Wakimoto, Merck, Japan

OLED1 - 1: *Invited* Bi-directional Foldable AMOLED Display with Millions Repeat Folding Cycles

13:00

M.-T. Lee, C.-L. Wang, C.-S. Chan, C.-C. Fu, W.-J. Su, Z.-X. Weng, Y.-H. Lin

AU Optronics, Taiwan

OLED1 - 2 Introduction of New Transparent Conductive Oxide Film for Anode of OLED

13:20

Y. Hayashi, Y. Toshimori, K. Kiuchi, I. Shiono, S. Komiyama, S. Zhang

Mitsubishi Materials, Japan

OLED1 - 3 Data-Counting Model for Empirical Prediction of OLED Degradation

13:40

X. Jiang, C. Xu

Saarland Univ., Germany

OLED1 - 4 Highly Performant and Stable Thin-Film Encapsulated Inverted Organic Top-Light Emitting Diodes Based on MoO_x as Electron Injection Layer

14:00

Y. Murat^{}, G. Wantz^{*}, J.-Y. Laurent^{**}, T. Maindron^{**}, L. Hirsch^{*}*

^{}Univ. of Bordeaux, France*

*^{**}Univ. Grenoble-Alpes CEA, France*

----- Break -----

14:40 - 16:00

501

OLED2: OLED for Lighting Applications *Special Topics of Interest on Lighting and Quantum Dot Technologies*

Chair: Y. Kijima, Huawei Techs., Japan

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

OLED2 - 1: *Invited* Recent Advances in White OLED Technologies for OLED TV and Lighting

14:40

C.-W. Han, H.-S. Choi, S.-S. Jang, M.-S. Kang, S.-S. Park, H.-C. Choi, B.-C. Ahn, I.-B. Kang

LG Display, Korea

OLED2 - 2 High Efficiency FAPbBr₃ Perovskite Light-Emitting Diode

15:00

*B. Xu, X. Zhang, W. Wang, J. Hao, W. Chen, D. Wang,
J. Qin, W. Cao*, P. Liu**, S. Chen, K. Wang*

Southern Univ. of S&T, China

**Tianjin Univ., China*

***Hubei Univ., China*

OLED2 - 3 OLED Lighting for Photorejuvenation

15:20

*M.-Z. Dai, Y.-H. Chen, C.-C. Chen, H.-C. Hu, W.-L. Hung,
T.-Y. Lin, J. H. Tao, W.-Y. Wang, C.-C. Chen, M.-T. Lee*

AU Optronics, Taiwan

OLED2 - 4 Inkjet-Printed Flexible Quantum Dot Light-Emitting Diodes for Next Generation Display

15:40

J. Zhuang, C. Wei, W. Su, Z. Cui

Chinese Ac. of Sci., China

----- Break -----

16:20 - 17:20

501

OLED3: OLED Devices

Chair: K. Nakayama, Osaka Univ., Japan

Co-Chair: Y. Sakai, Mitsubishi Chem., Japan

OLED3 - 1 Flexible Active Matrices with Solution-Processed High Mobility Organic TFTs for Large Area Displays

16:20

M. Ikawa, **, M. Kishi**, Y. Tanaka**, S. Kumagai**, K. Ueji**,
A. Yamamura**, Y. Tanaka*, M. Tanabe*, M. Ito*, M. Uno**, ***,
J. Takeya*, **, ***, *****

**Pi-Crystal, Japan*

***Univ. of Tokyo, Japan*

****Tech. Res. Inst. of Osaka Pref., Japan*

*****Organo-Circuit, Japan*

OLED3 - 2 Gate-Bias and Temperature Dependence in C8-BTBT Thin Film Transistor with MoO₃/Au Electrodes

16:40

S. Shaari, **, S. Naka*, H. Okada**

**Univ. of Toyama, Japan*

***Univ. Malaysia Perlis, Malaysia*

OLED3 - 3 Analysis of Degradation Mechanism in OLED with Multi-Layer Host Using Impedance Spectroscopy

17:00

*S. G. Lee, H. D. Lee, K. S. Kim, H. C. Choi, B. C. Ahn,
I. B. Kang*

LG Display, Korea

Author Interviews

17:40 – 18:20

Thursday, December 8

9:00 - 10:00

501

OLED4: OLED Materials I

Chair: H. Kuma, Idemitsu Kosan, Japan

Co-Chair: T. Uchida, Tokyo Polytech Univ., Japan

OLED4 - 1: *Invited* Efficient HOMO-LUMO Separation by Multiple Resonance Effect Toward Ultra Pure Blue Thermally Activated Delayed Fluorescence

9:00

T. Hatakeyama, K. Shiren^{}, K. Nakajima, S. Nomura^{*}, S. Nakatsuka, K. Kinoshita, J. Ni^{*}, Y. Ono^{*}, T. Ikuta^{*}**Kwansei Gakuin Univ., Japan**^{*}JNC Petrochem., Japan***OLED4 - 2: *Invited* High Efficiency Deep Blue Fluorescent Organic Light-Emitting Diodes with Thermally Activated Delayed Process**

9:20

*J. H. Kwon, D. H. Ahn, G. H. Kim**Kyung Hee Univ., Korea***OLED4 - 3 Recent Development of the Performance of Blue TADF Emitters for Display Applications**

9:40

*G. Liaptsis**CYNORA, Germany***Author Interviews**

10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

Poster OLEDp1: OLED Poster**OLEDp1 - 1 Depth Sensitive Analysis of Organic Thin Film by GCIB and XAS***E. Takahashi, D. Yamauchi, K. Imanishi, S. Suehiro, Y. Suzuri^{*}, Y. Muramatsu^{**}, E. M. Gullikson^{***}**Sumika Chem. Analysis Service, Japan**^{*}Yamagata Univ., Japan**^{**}Univ. of Hyogo, Japan**^{***}Lawrence Berkeley Nat. Lab., USA***OLEDp1 - 2 Orthogonally Polarized OLED for High Brightness 3D Display***J.-H. Jung, D.-M. Lee, H. B. Park, Y.-J. Lee, C.-J. Yu, J.-H. Kim**Hanyang Univ., Korea*

- OLEDp1 - 3 Study of Efficiency Enhancement in OLED with Microcavity Effect**
Y.-H. Huang, Y.-H. Chung, Y.-Y. Ho, H. Tsou, Y.-S. Wang, S.-W. Wu, Y.-T. Tasi, F. Su, K.-T. Chen
ITRI, Taiwan
- OLEDp1 - 4 Hybrid White OLEDs with Color Stability Utilizing Blue Emission Supporting Layer**
G. J. Yun^{}, Y. K. Jeong^{*}, J. C. Han^{*}, T. J. Yoon^{**}, H. J. Baek^{**}, S. E. Lee^{**}, Y. K. Kim^{**}, W. Y. Kim^{***}*
^{}Hoseo Univ., Korea*
*^{**}Hongik Univ., Korea*
*^{***}McMaster Univ., Canada*
- OLEDp1 - 5 Effects of Electron Transport Layer in High Efficiency Perovskite Light-Emitting Diodes**
S. J. Kim, C. Y. Moon, S. O. Kim
KAIST, Korea
- OLEDp1 - 6 Rb₂CO₃ as an n-Type Dopant in Enhancing the Electron Injection of Organic Light-Emitting Devices**
Y-H Liu, M.-C. Li, C.-T. Tsai, S.-Y. Chu
Nat. Cheng Kung Univ., Taiwan
- OLEDp1 - 7 High Efficiency Blue Phosphorescent Organic Light-Emitting Diodes with Double Emitting Layers Using CbzTaz and BImBP Host**
T.-L. Chiu, Y.-H. Hung, J.-J. Huang^{}, M.-K. Leung^{*}, J.-H. Lee^{*}, H.-C. Ho^{**}*
Yuan Ze Univ., Taiwan
^{}Nat. Taiwan Univ., Taiwan*
*^{**}ITRI, Taiwan*
- OLEDp1 - 8 Evaluation of Moisture Permeation Properties in Sealants by Secondary Ion Mass Spectrometry**
T. Nakamura, T. Akiyama, T. Miyamoto, J. Sameshima, Y. Nakagawa
Toray Res. Ctr., Japan
- OLEDp1 - 9 Investigation of the Water Vapor Transmission Rate of Encapsulated OLED Package by a Calculation Using Vacuum System**
G. Munkh-Enerel, C. Ye, C.-H. Moon
Hoseo Univ., Korea

OLEDp1 - 10 High Efficiency Deep Blue Organic Light-Emitting Diodes Using Thermally Activated Delayed Fluorescence Emitter

*H. I. Yang, G. W. Kim, J. B. Im, G. H. Kim, J. H. Kwon
Kyung Hee Univ., Korea*

OLEDp1 - 11 Organic Thin Film Transistors by Using an Insulator/Protein Overlay and Their Applications

*I.-G. Bae, H. G. Jeon, W. S. Lee, J. N. Huh, Y. Aggarwal,
B. Park
Kwangwoon Univ., Korea*

OLEDp1 - 12 Plasma Treatment for Hysteresis Reduction of OLED Displays

Z. Wang, Y. Yang, Z. Li**, L. Huangfu
BOE Tech. Group, China
*Chengdu BOE Optoelect. Tech., China
**Ordos Yuansheng Optoelect., China*

OLEDp1 - 13 Enhanced Performance of Light-Emitting Diodes Based on Quantum Dot-Semiconducting Polymer by Engineering Emission Layer Morphology

Y. Lee, A. Fokina**, J. H. Chang*^{***}, M. Park*, Y. Sung*,
W. K. Bae^{***}, K. Char*, C. Lee*, R. Zentel**
*Seoul Nat. Univ., Korea
**Johannes Gutenberg Univ., Germany
***KIST, Korea*

10:30 - 13:00

Multipurpose Hall

Poster OLEDp2: OLED/LIT Poster
Special Topics of Interest on Lighting and Quantum Dot Technologies

OLEDp2 - 1 Efficiency Enhancement of Blue Organic Light-Emitting Diodes Using a Corrugated Structure

*M. Hwang, H. Lee, S. M. Cho
Sungkyunkwan Univ., Korea*

OLEDp2 - 2 Quantum Dot Light-Emitting Diode with Ligand-Controlled CuInS₂/ZnS Quantum Dot

*M. Hishinuma, T. Fukuda, J. Maki, N. Kamata, Z. Honda
Saitama Univ., Japan*

OLEDp2 - 3 Reduced Exciton Lifetime in TADF Materials for Blue OLEDs

*Y. C. Kim, G. H. Kim, G. W. Kim, J. B. Im, J. H. Kwon
Kyung Hee Univ., Korea*

10:30 - 13:00

Multipurpose Hall

Poster OLEDp3: OLED/PE Poster
Special Topics of Interest on Printed Electronics

OLEDp3 - 1 Investigation on Poly(3-Hexylthiophene) Nano-Fiber Transistors with Hybrid Nano Compositor

M.-H. Chih, C.-E. Tsai, Y.-T. Chen, Y.-J. Li, Y.-W. Wang
Nat. Changhua Univ. of Education, Taiwan

OLEDp3 - 2 Investigation of Solution Process Rubrene Transistors under Different Annealing Conditions

Y.-H. Cheng, P.-C. Lai, P.-Y. Tsai, K.-C. Fan, Y.-W. Wang
Nat. Changhua Univ. of Education, Taiwan

OLEDp3 - 3 Multiple Horizontal-Dip-Coating of Small Molecular Emission Layers for Solution-Processable Organic Light-Emitting Devices

H. G. Jeon, W. S. Lee, J. N. Huh, Y. Aggarwal, B. Park
Kwangwoon Univ., Korea

----- Lunch -----

16:50 - 18:10

501

OLED5: OLED Materials II

Chair: H. Murata, JAIST, Japan

Co-Chair: K. Monzen, Nissan Chem. Ind., Japan

OLED5 - 1: *Invited* Molecular and Device Architecture Design for Highly Efficient and Durable OLEDs Based on TADF

16:50

D. P.-K. Tsang^{}, T. Matsushima^{*,**}, C. Adachi^{*,***}*

^{*}*Kyushu Univ., Japan*

^{**}*JST, Japan*

^{***}*Int. Inst. for Carbon Neutral Energy Res., Japan*

OLED5 - 2: *Invited* Design of Emitters and Charge Transporters for Highly Efficient Organic LEDs

17:10

H. Kaji

Kyoto Univ., Japan

OLED5 - 3 High Efficiency and Long Lifetime Fluorescent Blue Devices

17:30

H.-L. Huang, P.-W. Hsu, C.-J. Lin

eRay Optoelect. Tech., Taiwan

OLED5 - 4 **Highly Efficient and Low Efficiency Roll-Off Green
17:50** **Thermally Activated Delayed Fluorescence Material**

*J. B. Im, G. H. Kim, J. S. Moon, K. J. Kim, J. Y. Lee,
J. H. Kwon*

Kyung Hee Univ., Korea

Author Interviews

18:10 – 18:50

Supporting Organizations:

The Japanese Society of Printing Science and Technology

EXHIBITION

12:40 – 18:00 Wednesday, Dec. 7

10:00 – 18:00 Thursday, Dec. 8

10:00 – 14:00 Friday, Dec. 9

Lobby (2F, 4F)

Fukuoka International Congress Center

Free admission with your registration name tag

IDW/AD '16 Tutorial in Japanese

Organized by SID Japan Chapter

Tuesday, Dec. 6, 2016

Room 412

Fukuoka International Congress Center

Detailed information will be announced at

<http://www.sid-japan.org/>

Workshop on 3D/Hyper-Realistic Displays and Systems

Wednesday, December 7

13:00 - 13:10

Main Hall

Opening

Opening Remarks

13:00

N. Inoue, Program Chair, 3DSA

M. Tsuchida, 3D-WS Chair, IDW

13:10 - 14:30

Main Hall

3DSA1/3D1: Holography

Chair: N. Hur, ETRI, Korea

Co-Chair: T. Kakue, Chiba Univ., Japan

**3DSA1/
3D1 - 1:
13:10** ***Invited* Digital Holographic Display for 360° Viewable
3D Color Image Rendering and Performance
Evaluation**

J. Kim, K. Hong, Y. Lim, J. Kim, H.-G. Choo

ETRI, Korea

**3DSA1/
3D1 - 2
13:30** **Projection-Type Holographic Three-Dimensional
Display**

*K. Wakunami, R. Oi, T. Senoh, Y. Ichihashi, M. Okui,
K. Yamamoto*

NICT, Japan

**3DSA1/
3D1 - 3
13:50** **Generation of Color Three-Dimensional Images by
Viewing-Zone Scanning Holographic Display**

Y. Matsumoto, Y. Takaki

Tokyo Univ. of A&T, Japan

**3DSA1/
3D1 - 4
14:10** **Development of Run-Length-Based Fourier
Transform**

T. Akamatsu, T. Shimobaba, T. Kakue, T. Ito

Chiba Univ., Japan

----- Break -----

14:40 - 16:00

Main Hall

3D2/3DSA2: Visualization & AR
Special Topics of Interest on AR/VR and Hyper Reality

Chair: J.-W. Kim, ETRI, Korea
 Co-Chair: H. Kakeya, Univ. of Tsukuba, Japan

3D2/ 3DSA2 - 1: Invited Progress on Head-Worn Display Technology for Augmented Reality

14:40 Y. Wang, D. Cheng, C. Xu
Beijing Inst. of Tech., China

3D2/ 3DSA2 - 2: Efficiency Balance for a See-Through Head-Mounted Display with Microstructures

15:00 X. C. Wang, K. W. Zhao, Y. D. Lu, C. Y. Chuang, M. C. Chan, J. W. Pan
Nat. Chiao Tung Univ., Taiwan

3D2/ 3DSA2 - 3: Changing Perceived Leg Length and Motion on Virtual Walking Generator

15:20 T. Hamada, K. Yoshiho, R. Kondo, Y. Ikei*, K. Hirota*, M. Kitazaki**
Toyohashi Univ. of Tech., Japan
 *Tokyo Metropolitan Univ., Japan
 **Univ. of Electro-Commun., Japan

3D2/ 3DSA2 - 4: Sparse Registration for Small Amount of Overlap between Point Clouds

15:40 L. Sun, Y. Manabe, N. Yata
Chiba Univ., Japan

----- Break -----

16:20 - 17:40

Main Hall

3DSA3/3D3: Autostereoscopic Display

Chair: Y.-P. Huang, Nat. Chiao Tung Univ., Taiwan
 Co-Chair: Y. Ichihashi, NICT, Japan

3DSA3/ 3D3 - 1: Spacetime-Multiplex Auto-Stereo Display

16:20 J. Huang, R. Chien, C. Shiau, R. Liou, T. Wang, Y. Wang, P. H. Fang, J. Yang, T. Hsu
Delta Elect., Taiwan

3DSA3/ 3D3 - 2: Parallax Barrier Based Autostereoscopic Display with a Deep Viewing Zone

16:40 H. Kakeya, H. Takahashi, K. Okada
Univ. of Tsukuba, Japan

**3DSA3/
3D3 - 3
17:00** **Time-Multiplexing Multi-View Three-Dimensional Display Using Virtually Moving Microlens Array**
M.-K. Park, B. Kim, K.-I. Joo, H. Park, Y.-S. Kim^{}, G. Lee^{*}, H.-R. Kim*
Kyungpook Nat. Univ., Korea
^{}ETRI, Korea*

**3DSA3/
3D3 - 4
17:20** **Design of Portable LF Display for High-Quality 3D View Generation**
G. Lee, H. Lee, H. Eum, W.-S. Cheong, N. Hur, B. Kim^{}, J. J. Kwon^{*}, I. Hwang^{*}*
ETRI, Korea
^{}Samsung Display, Korea*

Author Interviews

17:40 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

Poster 3Dp1/3DSAp1: 3D & Hyper-Realistic Systems and Applications 1
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**3Dp1/
3DSAp1 - 1** **Research on Binocular Parallax 3D Display Device with Liquid Crystal Barrier**
X. Liu, G. Yin, M. Peng, J. Shao, Y. Zhang, K. Chao
BOE Tech. Group, China

**3Dp1/
3DSAp1 - 2** **Does Eye Strain Decrease after Observing 3D Imaging on the Light Field Display?**
M. Shoda, T. Iwane, R. Niimi^{}*
NIKON, Japan
^{}Niigata Univ., Japan*

**3Dp1/
3DSAp1 - 3** **Developing a Photometric Device for Generating Quality Texture and Normal Map**
Y.-C. Chen, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan

**3Dp1/
3DSAp1 - 4** **Optical Approach for the Correlation of Micro Lens from 3D Display System by Measurement System**
J. Seo, Y. M. Jeon, S. J. Huh, J. J. Kwon
Samsung Display, Korea

**3Dp1/
3DSAp1 - 5** **CNN-Based Pedestrian and Vehicle Detection Using Stereo Camera**
G.-C. Lee, J. Yoo
Kwangwoon Univ., Korea

- 3Dp1/
3DSAp1 - 6 GPU Acceleration of Hologram Generation Based on Ray-Sampling Plane**
H. Sato, T. Kakue, K. Wakunami, Y. Ichihashi*, R. Oi*, K. Yamamoto*, T. Shimobaba, T. Ito*
Chiba Univ., Japan
**NICT, Japan*
- 3Dp1/
3DSAp1 - 7 Mobile-Type Color Binocular Holographic Display System**
K.-J. Oh, M. S. Yoon, H.-G. Choo, J. Kim
ETRI, Korea
- 3Dp1/
3DSAp1 - 8 Waveguide Holograms Attached on LCD Panel for a Hybrid Display System**
W.-K. Lin,**, B.-S. Lin*, W.-C. Su***
**Nat. Chiao Tung Univ., Taiwan*
***Nat. Changhua Univ. of Education, Taiwan*
- 3Dp1/
3DSAp1 - 9 Holographic Device for Generating Collimated Beam by Using a LED**
Y.-J. You, W.-K. Lin*,**, Q.-Y. Chen*, B.-S. Lin**, W.-C. Su**
**Nat. Changhua Univ. of Education, Taiwan*
***Nat. Chiao Tung Univ., Taiwan*
- 3Dp1/
3DSAp1 - 10 Study on Compact Holographic Head-Mounted Display for Augmented Reality**
E. Murakami, Y. Oguro, Y. Sakamoto
Hokkaido Univ., Japan
- 3Dp1/
3DSAp1 - 11 Mixed Display Method for Real Objects and CG Texts in Electronic Holography**
R. Oi, Y. Ichihashi, T. Senoh, M. Okui, K. Wakunami, K. Yamamoto
NICT, Japan
- 3Dp1/
3DSAp1 - 12 Improvement of Color Reproducibility of Full-Color 3D Display Using Binary Phase Distribution**
S. Harada, K. Nitta, O. Matoba
Kobe Univ., Japan
- 3Dp1/
3DSAp1 - 13 Improvement of Full-Color Image Quality Using 1D Phase Modulation SLM by Iterative Fresnel Method with Dummy Area**
R. Toritani, K. Nitta, O. Matoba
Kobe Univ., Japan

- 3Dp1/**
3DSAp1 - 14 **Speeding Up of Image Quality Improvement Using Amplitude Inverse Filter Method in Random Phase-Free Hologram**
Y. Nagahama, T. Shimobaba, T. Kakue, T. Ito
Chiba Univ., Japan
- 3Dp1/**
3DSAp1 - 15 **Surface Quality Inspection of Micromechanical Parts Based on Phase-Shifting Methods**
T.-Y. Hsiao, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan
- 3Dp1/**
3DSAp1 - 16 **Grey Relational Analysis of Subjective and Non-Subjective Evaluations during Watching 3D Films**
C.-Y. Chen, Y.-H. Su, P.-J. Wu, Y.-K. Chen**, B.-S. Lin**
Nat. Taiwan Univ. of S&T, Taiwan
**Nat. Chiao Tung Univ., Taiwan*
***Nat. Taichung Univ. of S&T, Taiwan*
- 3Dp1/**
3DSAp1 - 17 **Evaluation of Perceived 3D Structure of Multi-View 3D Medical Image Based on Transparent Visualization: A Psychophysical Study**
Y. Sakano, Y. Kitaura, K. Hasegawa*, R. Lopez-Gulliver*, H. Ando, S. Tanaka**
NICT, Japan
**Ritsumeikan Univ., Japan*
- 3Dp1/**
3DSAp1 - 18 **Accommodation Measurement in VR Device of Google Cardboard Type**
H. Kang, H. Hong
Seoul Nat. Univ. of S&T, Korea
- 3Dp1/**
3DSAp1 - 19 **Head Tracking Based Immersive Sound Reproduction for Virtual Reality Display**
*C. J. Chun, K. M. Jeon, J. M. Moon, H. K. Kim, J. Yoo**
Gwangju Inst. of S&T, Korea
**Kwangwoon Univ., Korea*
- 3Dp1/**
3DSAp1 - 20 **Audio-Haptic Display for a Sense of Walking: Influence of Arm-Swing Interaction and User's Posture on Reproduced Walking in Real Space**
Y. Okuya, Y. Ikei, K. Hirota**, T. Amemiya***, M. Kitazaki*****
Univ. Paris-Sud, France
**Tokyo Metropolitan Univ., Japan*
***Univ. of Electro-Commun., Japan*
****NTT, Japan*
*****Toyoashi Univ. of Tech., Japan*

3Dp1/ 3DSAp1 - 21 **Experimental Assessment on Viewer's Impressions of 4K Ultra-High Definition and Multi-View 3D Images**
M. Okui, M. Makino, S. Yoshida, S. Iwasawa, K. Yamamoto
NICT, Japan

3Dp1/ 3DSAp1 - 22 **Bodily Reliving Experience Based on Multisensory Passive Stimulation**
S. Imao, K. Yamada, N. Saka, M. Kurosawa, R. Koide, Y. Ikei, K. Hirota, T. Amemiya**, M. Kitazaki***
Tokyo Metropolitan Univ., Japan
**Univ. of Electro-Commun., Japan*
***Toyohashi Univ. of Tech., Japan*

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster 3DSAp2/3Dp2: 3D & Hyper-Realistic Systems and Applications 2

3DSAp2/ 3Dp2 - 1 **Gradation Expression by Overlap of Voxels in Volumetric Display Composed of Photochromic Materials**
F. Kawashima, R. Hirayama, A. Shiraki, H. Nakayama, T. Kakue, T. Shimobaba, T. Ito*
Chiba Univ., Japan
**Nat. Astronomical Observatory of Japan, Japan*

3DSAp2/ 3Dp2 - 2 **Viewing Zone Expansion by Blurring Edge Parts in Edge-Based DFD Display**
T. Yamamoto, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3DSAp2/ 3Dp2 - 3 **Depth Perception Difference by Only Two Light Sources with Various Distances in Non-Overlapped DFD Display**
R. Takano, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3DSAp2/ 3Dp2 - 4 **Large and Deep Edge-Based DFD Display by Blurring Edge Parts**
Y. Nagao, H. Mizushina, S. Suyama
Tokushima Univ., Japan

3DSAp2/ 3Dp2 - 5 **Resolution Enhanced 3D Light Field Microscope with Liquid Crystal Wedge**
H.-H. Lee, P.-Y. Hsieh, W.-C. Chu, G. Saavedra, M.-C. Manuel*, Y.-P. Huang*
Nat. Chiao Tung Univ., Taiwan
**Univ. de València, Spain*

- 3DSAp2/
3Dp2 - 6** **Implementation of Artifacts Reduced Multi-View Display with High Quality 3D Images**
E. D. Lee, G. Lee, W.-S. Cheong, N. Hur
ETRI, Korea
- 3DSAp2/
3Dp2 - 7** **Floating 3D Interactive Device Using Special Pattern of Spatial-Multiplex**
S.-W. Hsu, C.-W. Shih, J.-Y. Wu, C.-H. Ting, Y.-P. Huang
Nat. Chiao Tung Univ., Taiwan
- 3DSAp2/
3Dp2 - 8** **Super Multiview Stereoscopic Display Using Time-Division Multiplexing Parallax Barrier**
K. Okada, H. Kakeya
Univ. of Tsukuba, Japan
- 3DSAp2/
3Dp2 - 9** **Depth Enhancement of Light Field Microscopy with Fast-Response Hexagonal Liquid Crystal Micro-Lens Array**
H.-A. Lin, C.-Y. Chu, P.-Y. Hsieh, Y.-P. Huang, C.-H. Kuo
Nat. Chiao Tung Univ., Taiwan
- 3DSAp2/
3Dp2 - 10** **Increasing Luminance of Aerial Image Perpendicular to the Table Top**
T. Kobori, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 11** **Luminance Improvement of Aerial Double-Layered Display with Polarized AIRR**
S. Ito, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 12** **Wide-Screen Head-Up Display with a Projection Lens Array**
T.-S. Yeh, W.-C. Su
Nat. Changhua Univ. of Education, Taiwan
- 3DSAp2/
3Dp2 - 13** **Formation of Aerial Image with Motion Parallax Generated by Scattered Light on Arcs**
K. Kawai, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 14** **Aerial Imaging with Transparent Acrylic Cubes and Applications for Steganography**
S. Morita, S. Onose, T. Okamoto, H. Yamamoto
Utsunomiya Univ., Japan

- 3DSAp2/
3Dp2 - 15** **Colorizing 3D Objects in Free-Viewpoint Through a Transparent LCD**
H.-P. Chien, P.-L. Sun, Y.-C. Su, H.-C. Li, Y.-P. Pi
Nat. Taiwan Univ. of S&T, Taiwan
- 3DSAp2/
3Dp2 - 16** **Digital Cosmetic Coloring System for 3D Facial Images**
M.-H. Lin, Y.-P. Pi, H.-S. Chen, P.-L. Sun, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan
- 3DSAp2/
3Dp2 - 17** **New Method for Luminance Addition/Subtraction System by Using Polarization Operation in Layered TN-LCDs**
Z. Fan, H. Mizushima, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 18** **Effect of a Cell Gap with a Bi-Focal LC Lens on 3D Properties in Two-Way Multi-View 2D/3D Display Combining the Bi-Focal LC Lens and HVxDP Panel**
Y. Ibata, K. Masumura, T. Asai, J. Matsushima, T. Sato, K. Shigemura
NLT Techs., Japan
- 3DSAp2/
3Dp2 - 19** **LCD Panel Design for HMD Based on Retinal Projection Display**
S.-K. Zhou^{}, W.-K. Lin^{*,**}, W.-H. Lin^{*}, B.-S. Lin^{**}, W.-C. Su^{*}*
^{}Nat. Changhua Univ. of Education, Taiwan*
*^{**}Nat. Chiao Tung Univ., Taiwan*
- 3DSAp2/
3Dp2 - 20** **Based on Three Dimensional Gesture and Finger of Mid-Air Interaction Interface with OCR Handwriting**
M.-Y. Lee, S.-C. Yang, S.-C. Wang, Y.-C. Fan
Nat. Taipei Univ. of Tech., Taiwan
- 3DSAp2/
3Dp2 - 21** **Layered Multi-View DFD Display for Improving Perceived Depth and Image Shift Smoothness even at Small Number of Multi-View**
T. Eguchi, H. Mizushima, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 22** **Perception of Many Transparent Layered Images in the Depth-Fused 3D Display**
K. Sakamaki, H. Mizushima, S. Suyama
Tokushima Univ., Japan

----- Break -----

16:50 - 18:10

Main Hall

3D4/3DSA5: Image Processing

Chair: H. Saito, Keio Univ., Japan
 Co-Chair: K. Takahashi, Nagoya Univ., Japan

3D4/ Face Tracking Method Using Depth Information3DSA5 - 1
16:50

J.-H. Lee, J. Yoo
Kwangwoon Univ., Korea

**3D4/ 3D Interactive System Based on Neural Network
3DSA5 - 2 Training of Dual Cameras**

17:10

T.-Y. Lu, X. Li, C.-H. Chen, Y.-P. Huang
Nat. Chiao Tung Univ., Taiwan

**3D4/ Synthesis of Top View Image and Detection of
3DSA5 - 3 Obstacles Using Multiple Cameras for Monitoring
17:30 Around a Truck**

K. Uehara, H. Saito, K. Yamamoto, H. Sato**
Keio Univ., Japan
**Mitsubishi Fuso Truck & Bus, Japan*

**3D4/ Study on Band-Efficient System Design and Video
3DSA5 - 4 Coding for Fixed & Mobile Hybrid UHD 3DTV System
17:50 Using Scalable HEVC**

*S.-H. Kim, K. H. Yong, K.-H. Jung**
ETRI, Korea
**Kookmin Univ., Korea*

Author Interviews

18:10 – 18:50

Friday, December 9

9:00 - 10:20

Main Hall

3DSA6/3D5: Volume Display and Display Analysis

Chair: T. Fujii, Nagoya Univ., Japan
 Co-Chair: D. Miyazaki, Osaka City Univ., Japan

**3DSA6/ Invited TSTF Up-Conversion Crystal as an Image
3D5 - 1: Space of Electro-Holography**

9:00

J.-Y. Son, H. Lee, C.-K. Sung, B.-R. Lee, H. Choo**
Konyang Univ., Korea
**ETRI, Korea*

**3DSA6/
3D5 - 2
9:20** **Aerial Projection of Three-Dimensional Color Motion
Pictures Based on Electro-Holography with
Parabolic Mirrors**

*T. Kakue, A. Uemura, T. Nishitsuji, T. Shimobaba, T. Ito
Chiba Univ., Japan*

**3DSA6/
3D5 - 3
9:40** **Viewing Zones Analysis of Convex Multi-View
Autostereoscopic 3D Display with Barrier**

*J.-Y. Lai, W.-C. Lin, H. Y. Lin
Nat. Taiwan Univ., Taiwan*

**3DSA6/
3D5 - 4
10:00** **Period of Color Moiré Fringes in Contact-Type 3D
Displays**

*H. Lee, J. Kim, J.-Y. Son
Univ. of Konyang, Korea*

----- Break -----

10:40 - 12:00

Main Hall

3D6/3DSA7: Aerial Display

Chair: J.-Y. Son, Konyang Univ., Korea

Co-Chair: H. Mizushima, Tokushima Univ., Japan

**3D6/
3DSA7 - 1
10:40** **Aerial Volumetric Image Display Based on
Retroreflective Imaging and Optical Scanning with a
Slanted Rotating Mirror**

*D. Miyazaki, R. Tamaki, T. Mukai
Osaka City Univ., Japan*

**3D6/
3DSA7 - 2
11:00** **3D Volume Image Reconstruction in Space, Using
Combined System of Light-Field Display and Aerial
Imaging Devise, AIRR**

T. Iwane, M. Nakajima, H. Yamamoto
NIKON, Japan
Utsunomiya Univ., Japan

**3D6/
3DSA7 - 3
11:20** **Horizontal Parallax Table-Top Floating Image System
with Toroidal-Lens Structure**

*P.-Y. Chou, C.-H. Tai, S. -H. Huang, Y.-P. Huang
Nat. Chiao Tung Univ., Taiwan*

**3D6/
3DSA7 - 4
11:40** **Visual and Thermal Floating Display with AIRR and
WARM**

*T. Okamoto, S. Ito, K. Onuki, T. Itoigawa, H. Yamamoto
Utsunomiya Univ., Japan*

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

Main Hall

3D7/3DSA8: Technologies for 3D Imaging

Chair: Y. Takaki, Tokyo Univ. of A&T, Japan

Co-Chair: J. Arai, NHK, Japan

**3D7/
3DSA8 - 1
13:30** **Synthesis of Wide FOV RGB-D Images by
Registration and Upsampling of 3D Lidar with
Omnidirectional RGB Camera**

*H. Usami, S. Miyata, H. Saito**Keio Univ., Japan*

**3D7/
3DSA8 - 2
13:50** **DIBR Digital Image Watermarking Based on Depth
Image and DWT**

*Y. S. Lee, Y.-H. Seo, D.-W. Kim**Kwangwoon Univ., Korea*

**3D7/
3DSA8 - 3
14:10** **Spectral Color Reproduction of Multiband 3D
Projector Using Evolution Strategy**

*M. Tomizawa, N. Yata, Y. Manabe**Chiba Univ., Japan*

**3D7/
3DSA8 - 4
14:30** **Liquid Crystal Lens for Polarized 2D/3D Endoscopic
Imaging**

*A. Hassanfiroozi, Y.-P. Huang, H.-P. D. Shieh**Nat. Chiao Tung Univ., Taiwan*

----- Break -----

15:10 - 16:40

Main Hall

**DES4/3D8: 3D Display and Sensor
Special Topics of Interest on AR/VR and Hyper Reality**

Chair: Y. Oyamada, Tottori Univ., Japan

Co-Chair: H. Yamamoto, Utsunomiya Univ., Japan

**DES4/
3D8 - 1:
15:10** **Invited Displaying Real World Light Fields Using
Stacked LCDs**

*K. Takahashi, Y. Kobayashi, T. Fujii**Nagoya Univ., Japan*

**DES4/
3D8 - 2:
15:35** **Invited Lock-in-Detection Based Time-of-Flight
CMOS Image Sensors**

*K. Yasutomi, S. Kawahito**Shizuoka Univ., Japan*

**DES4/
3D8 - 3
16:00**

**Holographic Augmented Reality Head-Up Display
with Eye Tracking and Steering Light Source**

*Y.-T. Kim, J. Seo, W. Seo, G. Sung, Y. Kim, H. Song, J. An,
C.-S. Choi, S. Kim, H. Kim, Y. Kim, Y. Kim, H.-S. Lee*

Samsung Elect., Korea

**DES4/
3D8 - 4
16:20**

**Flat Autostereoscopic 3D Display with Enhanced
Resolution Using a Wavelength Selective Filter
Barrier**

*S. Jurk, M. Kuhlmeier, R. Bartmann, B. Duckstein,
R. de la Barré*

Fraunhofer HHI, Germany

Author Interviews

16:40 – 17:10

**Evening Get-Together
with Wine**

Tuesday, Dec. 6, 2016

18:00 – 20:00

RACONTER (1F)

Fukuoka International Congress Center

(Sponsored by Merck Ltd., Japan)

See page 14 for details

Reception

Wednesday, Dec. 7, 2016

19:00 – 21:00

Crowne Grand Ball Room (2F)

ANA Crowne Plaza Fukuoka

See page 14 for details

Workshop on Applied Vision and Human Factors

Wednesday, December 7

13:00 - 13:05

502

Opening

Opening Remarks

13:00

Y. Shimodaira, Shizuoka Univ., Japan

13:05 - 14:05

502

VHF1: Ergonomics for Automotive Applications *Special Topics of Interest on Automotive Displays*

Chair: Y. Shimodaira, Shizuoka Univ., Japan

Co-Chair: K. Sakamoto, Panasonic, Japan

VHF1 - 1 **Influence of Image Position and Visual Target on
13:05** **Depth Perception When Using Automotive 3D
Head-Up Display**

R. Noguchi, T. Daimon, T. Mori, K. Kasazumi**

Keio Univ., Japan

**Panasonic, Japan*

VHF1 - 2 **Traffic Signal with PWM Coding for Visible Light
13:25** **Communication**

C.-J. Ou, M.-Y. Chen, Z.-W. Huang, C.-H. Ou, C.-Y. Ou**

Hsiuping Univ. of S&T, Taiwan

**Washington High School, Taiwan*

VHF1 - 3 **Key Perceptual Factors for Smart Garnish Light/
13:45** **Display**

J.-K. Ko, S.-Y. Choi, M.-S. Noh, S.-S. Kim, G.-H. Kim*,
W.-K. Song*, K.-G. Seok***

Korea Inst. of Lighting & Tech., Korea

**Seoyon Elect., Korea*

***Dilussion, Korea*

----- Break -----

14:40 - 16:00

503

UXC2/VHF2: Human Factors

Chair: H. Shibata, Fuji Xerox, Japan

Co-Chair: N. Hiruma, NHK-ES, Japan

**UXC2/
VHF2 - 1:
14:40** *Invited* **Development of Japanese Electronic Text Readers Based on Perceptual Mechanisms of Reading***J. Kobayashi^{*},^{**}, E. Shinbori^{*}, T. Kawashima^{**}**^{*}Dai Nippon Printing, Japan**^{**}Future Univ. Hakodate, Japan***UXC2/
VHF2 - 2
15:00** **Match Optimization of LED and Color Filter Spectrum for LCD Optics***H. Chen, T. Zhou, P. Shen, C. Tseng**XiaMen Tianma Microelect., China***UXC2/
VHF2 - 3
15:20** **An Experiment of Psychological Impact of LED Display***T. Matsui, T. Fukuda, S. Nagamachi^{*}**Osaka Univ., Japan**^{*}LEM Design Studio, Japan***UXC2/
VHF2 - 4
15:40** **Effects of Different Comfortable Binocular Disparities on the DP3 Signal-an Event-Related Potential Study Using an Oddball Task***P. Ye, X. Wu, D. Gao, S. Deng, N. Xu, J. She, J. Chen**Sun Yat-Sen Univ., China*

----- Break -----

16:20 - 17:40

503

VHF3: Display Measurement and Simulation

Chair: J. Bergquist, Semiconductor Energy Lab., Japan

Co-Chair: S. Uehara, Toshiba, Japan

**VHF3 - 1
16:20** **Mura Image Quality Evaluation Based on Fourier Spectrum Analysis***K. Ishiguro, T. Asano, W. Liu^{*}**Hiroshima Inst. of Tech., Japan**^{*}Fast, Japan***VHF3 - 2
16:40** **Optical Properties of a Transparent LCD***P. Boher, T. Leroux, T. Bignon, V. Collomb-Patton**ELDIM, France*

**VHF3 - 3 Preferred Background Lighting and Tone
17:00 Reproduction Curves of See-Through Displays**

*H.-P. Chien, P.-L. Sun
Nat. Taiwan Univ. of S&T, Taiwan*

**VHF3 - 4 1-D Simulation on Sparkle Perception
17:20**
*X. Zhong, Y. Yang, J. Liu, Y. Yang, H. Cui, D. Lee, P-H Lung
Wuhan China Star Optoelect. Tech., China*

Author Interviews
17:40 – 18:20

Thursday, December 8

9:00 - 10:20

Main Hall

3DSA4/VHF4: Human Vision Special Topics of Interest on AR/VR and Hyper Reality

Chair: S. Yano, Shimane Univ., Japan
Co-Chair: S. Uehara, Toshiba, Japan

**3DSA4/ VHF4 - 1: Invited Brain Function Analysis of Visual and Cross-
9:00 Modal Information**

H. Ando^{,**}
^{*}NICT, Japan
^{**}Osaka Univ., Japan*

3DSA4/ Invited Human Vision Response in AR & VR

**VHF4 - 2:
9:20**
Y.-S. Chen, Y.-P. Huang^{}, C.-Y. Chen^{**}
Cathay General Hospital, Taiwan
^{*}Nat. Chiao-Tung Univ., Taiwan
^{**}Nat. Taiwan Univ. of S&T, Taiwan*

**3DSA4/ Attentive Tracking of Moving Objects in
VHF4 - 3 Stereoscopic Viewing**

9:40
A. U. Rehman, Y. Nosaki^{}, K. Kihara^{*}, S. Ohtsuka^{*}
Kagoshima Nat. College of Tech., Japan
^{*}Kagoshima Univ., Japan*

**3DSA4/ Subjective Experiment Study on Binocular Overlap
VHF4 - 4 Effect of Different Colors for the Augmented Reality
10:00 Near-Eye Display**

H. Zhang, Y. Tang, Y. Zheng, Y. Xie^{}, B. Wang
Southeast Univ., China
^{*}S&T on Electro-optic Control Lab., China*

Author Interviews
10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

**Poster VHFp1: Applied Vision and Human Factors -
Automotive Applications**
Special Topics of Interest on Automotive Displays

VHFp1 - 1 Evaluation of Specular Reflectance for Automotive Display

K. Mo, B. Choi

LG Display, Korea

10:30 - 13:00

Multipurpose Hall

**Poster VHFp2: Applied Vision and Human Factors -
Lighting Technologies**
Special Topics of Interest on Lighting and Quantum Dot Technologies

VHFp2 - 1 Quantification of LCD's Light Leakage of Each Corner Using 2D FFT and 2D CSF

S. W. Jung, J. Y. Kim

LG Display, Korea

10:30 - 13:00

Multipurpose Hall

Poster VHFp3: Applied Vision and Human Factors

VHFp3 - 1 Visual-Chromatic Spatial and Temporal Frequency Responses of Color-Blind People

H. Isono

Tokyo Denki Univ., Japan

VHFp3 - 2 Improvement of OLED Color Uniformity Using a 3D Adjustment Method

M. Kashihara, S. Omori, Y. Nishikawa

Konica Minolta, Japan

VHFp3 - 3 Comparison of Watermarking for 3D Models under Different Lighting Conditions

H.-L. Liu, T.-H. Lin

Nat. Taiwan Univ. of S&T, Taiwan

VHFp3 - 4 Circular Polarizing Light Panel for Reducing Visual Fatigue

D. Liu, H. Sun, Y. Tang, T. Yang, D.-J. Li, H. Cui, P.-H. Lung

Wuhan China Star Optoelect. Tech., China

- VHFp3 - 5 Image Quality Perception Model Based on Retinal Structures for Evaluation of Wearable Visual Devices**
C.-J. Ou, H. Y. Sun^{}, D. P. C. Lin^{*}, C.-H. Lin, S.L Young*
Hsiuping Univ. of S&T, Taiwan
^{*}*Chung Shan Medical Univ., Taiwan*

Friday, December 9

9:00 - 10:10	503
VHF5: Human Factors and Applications	

Chair: Y. Hisatake, Japan Display, Japan
 Co-Chair: T. Nakatsue, Sony, Japan

- VHF5 - 1: 9:00 *Invited* Visual Effects of Concave Curved Displays in Large and Wide-Angle Environment: Immersion and Aftereffect**

S. Ohtsuka
Kagoshima Univ., Japan

- VHF5 - 2 9:30 Image Quality Evaluation Method for Online Camera Module Inspection Based on Human Vision**

P.-J. Weng, Q. Zong, W.-C. Chao, Y.-P. Huang,
H.-P. D. Shieh
Nat. Chiao Tung Univ., Taiwan

- VHF5 - 3 9:50 Novel Optical Compensation Algorithm for AMOLED Mura Cancellation**

Y. Deng, Y. Jin, S. Syu, M. Jou
Shenzhen China Star Optoelect. Tech., China

----- Break -----

10:40 - 11:50	503
VHF6: Visual Comfort and Motion Sickness	

Chair: T. Shibata, Tokyo Univ. of Social Welfare, Japan
 Co-Chair: Y. Endo, Asahi Glass, Japan

- VHF6 - 1: 10:40 *Invited* What Kind of Motion Is the Primary Cause of Visually Induced Motion Sickness?**

H. Ujike, H. Watanabe
AIST, Japan

- VHF6 - 2 11:10 Visual Comfort of Head Mounted Displays**

Y. Kim, J. Park^{}, Y. Jun^{*}, H. Kim^{**}, Y.-J. Seo^{**}, Y. K. Park^{*}*
Ewha Color Design Inst., Korea
^{*}*Ewha Womans Univ., Korea*
^{**}*Samsung Display, Korea*

VHF6 - 3 **The Reduction of Harmful Blue Light Radiation of LCD for Prevention of Photo-Damage to Human Eyes**
11:30

Y. Yang, H. Cui, X. Zhong, D. Li, Y. San, J. Liu
Wuhan China Star Optoelect. Tech., China

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:40

503

VHF7: Color Vision and Illumination

Chair: H. Ujike, AIST, Japan
 Co-Chair: Y. Imai, Toshiba, Japan

VHF7 - 1: ***Invited* Electronic Color Target for Evaluation of Color Reproduction of Wide Gamut Image Devices**
13:30

Y. Shimodaira, H. Urabe, H. Suzuki, M. Katoh***
Shizuoka Univ., Japan
**Nobuo Elec., Japan*
***Papalab, Japan*

VHF7 - 2 **Analysis of Color Saturation at Low Gray Levels**
14:00

Y. J. Chen, C. S. Cheng, P. C. Yeh, H. C. Huang,
W. M. Huang
AU Optronics Tech. Ctr., Taiwan

VHF7 - 3 **Optimal White LED Spectrum for Pattern Recognition under Mesopic Condition**
14:20

*H.-C. Li, P. L. Sun, R. Luo**
Nat. Taiwan Univ. of S&T, Taiwan
**Univ. of Leeds, UK*

----- Break -----

Author Interviews

16:30 – 17:10

Supporting Organizations:

Technical Committee on Electronic Information Displays, Electronics Society, IEICE
 Technical Group on Information Display, ITE

Workshop on Projection and Large-Area Displays and Their Components

Thursday, December 8

9:00 - 9:05

412

Opening

Opening Remarks

9:00

S. Ouchi, Hitachi, Japan

9:05 - 10:25

412

PRJ1: Standardization and Characterization

Chair: S. Ouchi, Hitachi, Japan

Co-Chair: T. Yagi, Mitsubishi Elec., Japan

PRJ1 - 1: *Invited* Performance Characterization and Measurement Methods for Eyewear Display

9:05

K. Oshima^{,**}, K. Naruse^{*,***}, K. Tsurutani^{*,***}, J. Iwai^{*,****},
S. Uehara^{*}, S. Ouchi^{*}, Y. Shibahara^{*}, H. Wakemoto^{*},
M. Kurashige^{*****}*

^{*}JEITA, Japan

^{**}Otsuka Elect., Japan

^{***}Konica Minolta, Japan

^{****}Telepathy Japan, Japan

^{*****}Dai Nippon Printing, Japan

PRJ1 - 2 Overview of Standardization Activities for Head Mounted Displays

9:25

K. Hyodo, S. Uehara^{}, H. Ujike^{**}, S. Oouchi^{***},
K. Oshima^{****}, H. Watanabe^{**}*

Konica Minolta, Japan

^{}Toshiba, Japan*

*^{**}AIST, Japan*

*^{***}Hitachi, Japan*

*^{****}Otsuka Denshi, Japan*

PRJ1 - 3 Standardization Activities for Electronic Display Devices in IEC TC 110

9:45

M. Kurashige

Dai Nippon Printing, Japan

PRJ1 - 4 High Color Rendering Index Using BGYR Four-Color Laser Illuminants

10:05

J. Kinoshita, H. Aizawa, A. Takamori, K. Yamamoto

Osaka Univ., Japan

10:25 - 10:34

412

Short Presentation PRJp1: Projection Displays

All authors of poster papers for the PRJp1 session will give a brief 3-minute oral presentations with no discussion time in advance.

10:30 - 13:00

Multipurpose Hall

Poster PRJp1: Projection Displays

- PRJp1 - 1 Lens Design for HUD in Vehicles with Smart Phone**
Q.-Y. Chen, T.-S. Yeh, Y.-J. You, W.-C. Su
Nat. Changhua Univ. of Education, Taiwan
- PRJp1 - 2 Interactive Editing and Automatic Projection of Motion Impression on Real-World Objects**
T. Fukiage, T. Kawabe, S. Nishida
NTT, Japan
- PRJp1 - 3 Single Lens Complex Modulation by Iterative Spatial Cross Modulation Method**
*Y. Qi, J. Xia, C. Chang**
Southeast Univ., China
**Nanjing Normal Univ., China*

Author Interviews

10:30 – 11:10

----- Lunch -----

Friday, December 9

9:00 - 10:20

201

PRJ2: Wearable Display
Special Topics of Interest on AR/VR and Hyper Reality

Chair: D. Cuypers, imec, Belgium
 Co-Chair: T. Suzuki, JVC KENWOOD, Japan

- PRJ2 - 1 Wearable See-Through Retinal Projector Using Optical Simulation Design**
9:00
H. A. Chen, W. S. Sun, Y. C. Chiang*, Z. P. Yang, J. W. Pan*
Nat. Chiao Tung Univ., Taiwan
**Nat. Central Univ., Taiwan*

PRJ2 - 2 **Optical Design of Wide Viewing Eyeglass-Type**
9:20 **Wearable Device Using Multiple Reflection Element**
S. Sawada, A. Moriya, T. Sasaki, J. Yamaguchi, M. Baba
Toshiba, Japan

PRJ2 - 3 **Optimization and Verification of Viewing Angle for**
9:40 **Wearable Display Device for Outdoor Use**
J. Iwai, H. Kimura
Telepathy Japan, Japan

PRJ2 - 4 **Common Platform for Maintenance System with**
10:00 **Wearable Device**
T. Fujiwara, R. Kabata, Y. Narita*, K. Kikuchi*, K. Oonishi**
Hitachi, Japan
**Hitachi Syss., Japan*

----- Break -----

10:40 - 12:00

201

PRJ3: Projection Components and Devices
Special Topics of Interest on Lighting and Quantum Dot Technologies

Chair: S. Shikama, Setsunan Univ., Japan
 Co-Chair: J. W. Pan, Nat. Chiao Tung Univ., Taiwan

PRJ3 - 1: ***Invited* Experimental Characterization of Oxide**
10:40 **Semiconductors Based SLM for Practical Use**
S. Nakashima, W. Nomura, N. Tate
Kyushu Univ., Japan

PRJ3 - 2 **Improvement of Output Power Dependence on**
11:00 **Temperature in 638-nm BA-LD**
T. Yagi, K. Kuramoto, S. Abe, M. Kusunoki, M. Miyashita
Mitsubishi Elec., Japan

PRJ3 - 3 **Liquid Crystal Based Beam Deflectors**
11:20 *D. Cuypers, X. Shang, H. De Smet*
imec, Belgium

PRJ3 - 4 **Very Compact Waveguide-Type RGB Coupler with**
11:40 **Multimode Converter**
J. Sakamoto, S. Katayose, K. Watanabe, M. Itoh,
T. Hashimoto
NTT, Japan

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

201

PRJ4/DES3: 3D and Near Eye Displays
Special Topics of Interest on AR/VR and Hyper Reality

Chair: J. Reitterer, TriLite Techs., Austria
 Co-Chair: T. Hayashi, Okamoto Glass, Japan

PRJ4/DES3 - 1: ***Invited*** **Projection Mapping Technologies for AR**
 13:30 *D. Iwai*
Osaka Univ., Japan

PRJ4/DES3 - 2: ***Invited*** **Animating Static Objects by Illusion-Based Projection Mapping**
 13:50 *S. Nishida, T. Kawabe, T. Fukiage, M. Sawayama*
NTT, Japan

PRJ4/DES3 - 3: ***Invited*** **3D Billboards without Glasses**
 14:10 *J. Reitterer, F. Fidler, G. Schmid, C. Hambeck,*
F. S. Julien-Wallsee, W. Leeb, U. Schmid**
TriLite Techs., Austria
**Tech. Univ. Wien, Austria*

PRJ4/DES3 - 4 **Smart Contact Lens Platform with a Deformed Active Artificial Iris**
 14:30 *A. V. Quintero** , R. Verplancke** , J. Vanfleteren***
*H. De Smet***
**Ghent Univ., Belgium*
***imec, Belgium*

----- Break -----

15:10 - 16:30

201

PRJ5: Automotive Displays
Special Topics of Interest on Automotive Displays

Chair: V. R. Bhakta, Texas Instrs., USA
 Co-Chair: K. Ohara, Texas Instrs., Japan

PRJ5 - 1: ***Invited*** **Adaptive High Resolution Headlight Using Texas Instruments DLP Technology**
 15:10 *V. R. Bhakta, B. Ballard*
Texas Instrs., USA

PRJ5 - 2 **Study on Improvement of Conspicuity at Night with Lighting for Drawing on a Road Surface**
 15:30 *Y. Tsuchiya, R. Kawaji, S. Iwamoto*
Honda R&D, Japan

**PRJ5 - 3 Integrated RGB Laser Light Module for Augmented
15:50 and Virtual Reality Applications**

*J. Reitterer, F. Fidler, G. Schmid, C. Hambeck,
F. S. Julien-Wallsee, W. Leeb*, U. Schmid**

TriLite Techs., Austria

**Tech. Univ. Wien, Austria*

**PRJ5 - 4 Development of Head-Up Display for Railway Vehicle
16:10**

*A. Michimori, J. Kondo, S. Nakahara, A. Heishi,
T. Yamamura, S. Ohashi, H. Yokoyama*, H. Horiuchi**

Mitsubishi Elec., Japan

**East Japan Railway, Japan*

Author Interviews

16:30 – 17:10

Supporting Organizations:

Laser Display and Lighting Conference

Laser Display Technology Research Group, Optical Society of Japan

Technical Group on Information Display, ITE

SID Display Week 2017

May 21 – 26, 2017

Los Angeles Convention Center

Los Angeles, California, USA

<http://www.sid.org/>

IDW '17

The 24th International Display Workshops

Dec. 6 – 8, 2017

Sendai International Center

Sendai, Japan

<http://www.idw.or.jp/>

Workshop on Electronic Paper

Wednesday, December 7

14:40 - 14:45

502

Opening

Opening Remarks

14:40

K. Hashimoto, E Ink Japan, Japan

14:45 - 15:55

502

EP1: Color e-Paper Technologies

Chair: M. Omodani, Tokai Univ., Japan

Co-Chair: G. Zhou, South China Normal Univ., China

EP1 - 1: *Invited* Full Color Electrophoretic Display with No CFA

14:45

M. D. McCreary, S. J. Telfer

E Ink, USA

EP1 - 2 Novel Organic Electrochromic Device toward Multi-Color Representation

15:10

M. Yukikawa, K. Nakamura, N. Kobayashi

Chiba Univ., Japan

EP1 - 3: *Invited* Three-Particle Electrophoretic Display

15:30

M. Wang, C. Lin, H. Du, H. Zang

E Ink California, USA

----- Break -----

Author Interviews

17:40 – 18:20

Final Program

The final program of IDW/AD '16 will be available on the website (<http://www.idw.or.jp/>) from the middle of November

Thursday, December 8

9:00 - 10:10

502

EP2: Flexible e-Paper and IoT Application of e-Paper

Chair: N. Kobayashi, Chiba Univ., Japan

Co-Chair: Y. Toko, Stanley Elec., Japan

EP2 - 1: Invited High Durable Electrochromic Devices with Plastic Substrates

9:00

*H. Yaginuma, S. Yamamoto, D. Gotoh, K. Yutani, T. Fukuda, F. Kaneko, M. Inoue, H. Takahashi, Y. Okada, K. Takauji, T. Yashiro**Ricoh, Japan***EP2 - 2: Invited Advances in Flexible Electrophoretic Displays**

9:25

*C. C. Tsai**E Ink Holdings, Taiwan***EP2 - 3: E-Paper as a Key Displays Technology for Internet of Things**

9:50

*K. Blankenbach, A. Marsal**Pforzheim Univ., Germany*

10:10 - 10:16

502

Short Presentation EPp1: Electronic Paper

All authors of poster papers for the EPp1 session will give a brief 3-minute oral presentations with no discussion time in advance.

Author Interview

10:30 – 11:10

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster EPp1: Electronic Paper**EPp1 - 1 Discussion on Novel e-Paper Driving Mechanism and Possible Ways to Realize Full-Color Electronic Paper**

EPp1 - 1

L. Wang, Y.-C. Wang, G.-S. Liu, H.-P. Shieh, B.-R. Yang*
*Sun Yat-Sen Univ., China***Nat. Chiao Tung Univ., Taiwan*

EPp1 - 2 All-Printed Flexible Electrochromic Paper Based on Electrolyte Matrix*S.-Y. Peng, Y.-C. Liao**Nat. Taiwan Univ., Taiwan*

----- Break -----

16:50 - 18:15**502****EP3: Novel Materials for e-Paper**

Chair: S. Maeda, Tokai Univ., Japan

Co-Chair: M. Higuchi, NIMS, Japan

EP3 - 1: Invited Bistable Electrochromic Display for a Low Energy-Consuming Persistent Imaging**16:50***E. Kim**Yonsei Univ., Korea***EP3 - 2 Electrochemically Triggered Fluorescence and Coloration in Single Fluoran Molecule****17:15***K. Nakamura, K. Kanazawa, N. Kobayashi**Chiba Univ., Japan***EP3 - 3 Electrochromic Device on a Single Substrate****17:35***S. Goto, Y. Okada, S. Yamamoto, D. Gotoh, T. Sagisaka, M. Shinoda, K. Takeuchi, S. C. Kim, Y. Naijoh, T. Yashiro**Ricoh, Japan***EP3 - 4 Achievement of Long-Term Stability of AC-Driven Electrochemiluminescence from Ruthenium(II) Complex by Adding TiO₂ Nanoparticles****17:55***S. Tsuneyasu, K. Ichihara, K. Nakamura, N. Kobayashi**Chiba Univ., Japan***Author Interviews**

18:10 – 18:50

IMID 2016

Aug. 23 – 26, 2016

ICC JEJU

Jeju, Korea

<http://www.imid.or.kr/>

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Thursday, December 8

9:00 - 9:05

409

Opening

Opening Remarks

9:00

M. Nakamoto, Shizuoka Univ., Japan

9:05 - 10:25

409

MEET1: Nanotechnologies for Display Applications

Chair: P. Kathirgamanathan, Brunel Univ. London, UK

Co-Chair: K. C. Park, Kyung Hee Univ., Korea

MEET1 - 1: *Invited* Graphene for Field Emission Applications

9:05

W. I. Milne^{,**}, T. Hallam^{***}, G. Duesberg^{***}, C. Li^{****},
W. Lei^{****}, B. P. Wang^{****}, M. T. Cole^{*}*

^{}Univ. of Cambridge, UK*

*^{**}Tokyo Tech, Japan*

*^{***}Trinity College Dublin, Ireland*

*^{****}Southeast Univ., China*

MEET1 - 2: *Invited* New Approach for Fabricating High-Brightness GaN LED Microdisplays with High Resolution and Very Small Pixel-Pitch

9:25

*F. Templier, L. Benaissa, I. Degirmencioglu, M. Charles,
S. Tirano*

CEA-LETI & 3-5 Lab, France

MEET1 - 3: *Invited* Novel Approach to the Manufacture of MicroLED Colour Conversion Structures

9:45

J. Silver, P. G. Harris, G. R. Fern, J. Bonar^{}, G. Valentine^{*},
S. Gorton^{*}*

Brunel Univ. London, UK

^{}mLED, UK*

MEET1 - 4: *Invited* Transfer Printing of Passive and Active Matrix Displays Using Inorganic Micro-LEDs

10:05

A. J. Trindade, E. Radauscher^{}, S. Bonafede^{*}, D. Gomez^{*},
T. Moore^{*}, C. Prevatte^{*}, B. Raymond^{*}, B. Fisher^{*},
K. Ghosal^{*}, A. Fecioru, D. Kneeburg^{*}, M. Meitl^{*}, C. Bower^{*}*

X-Celeprint, Ireland

^{}X-Celeprint, USA*

----- Break -----

Author Interviews

10:30 – 11:10

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster MEETp1: Quantum Dots and Nanotechnologies
Special Topics of Interest on Lighting and Quantum Dot Technologies**MEETp1 - 1 CsPbBr₃ Based Perovskite Nanocrystals for Light-Emitting Diodes***S.-Y. Cho, H.-M. Kim, J. Jang**Kyung Hee Univ., Korea***MEETp1 - 2 All Solution Processed Charge Generation Junction for Quantum-Dot Light Emitting Diodes***E. Hwang, H.-M. Kim, J. Kim, J. Jang**Kyung Hee Univ., Korea*

14:10 - 16:40

Multipurpose Hall

Poster MEETp2: Novel Materials and Components**MEETp2 - 1 Fabrication of Nano-Gap in Thin Metal (Ag, Au, Cu) Film Using Water-Soluble Inorganic Film for Surface-Enhanced Raman Spectroscopy***K. Min, W. J. Jeon, H. K. Yu**Ajou Univ., Korea***MEETp2 - 2 Doping Effect on Performance of Solution-Processed Metal Oxide P-N Heterojunction Diodes***J. Shin, J. Kim, H.-M. Kim, J. Jang**Kyung Hee Univ., Korea***MEETp2 - 3 Application of Projector Display Technology for Inspection of Hydrogen Production Rate with Designed TiO₂ Electrodes***C.-J. Ou, R.-Y. Lan, C.-R. Ho, C.-J. Huang**Hsiuping Univ. of S&T, Taiwan***MEETp2 - 4 Update Review on the Application of Information Display Technology for Optogenetics and Cell Illuminating Device***C.-J. Ou, M. Y. Cheng, C.-R. Ho**Hsiuping Univ. of S&T, Taiwan*

Friday, December 9

9:00 - 10:20

413

MEET2: Novel Materials and Components

Chair: J. Silver, Brunel Univ. London, UK

Co-Chair: C. Lee, Seoul Nat. Univ., Korea

**MEET2 - 1: Invited Novel Connection Principle for Solar Cells
9:00 Based on Semiconductor Nanowires***D. Pribat^{*,**}**^{*}Sungkyunkwan Univ., Korea**^{**}Ecole PolyTech., France***MEET2 - 2: Invited Fabrication of High Performance Electron
9:20 Beam with Carbon Nanotube Cold Cathode and Its
Applications***K. C. Park, J. S. Kang**Kyung Hee Univ., Korea***MEET2 - 3 Graphene Protected Ag Nanowires: Blocking of
9:40 Surface Migration for Thermally Stable and Wide-
Range-Wavelength Transparent Flexible Electrodes***J. Lee, A. Lee, H. K. Yu**Ajou Univ., Korea***MEET2 - 4: Invited Progress in Electro-Fluidic Displays at South
10:00 China Normal University***B. Tang^{*}, R. A. Hayes^{*,**,*}, G. F. Zhou^{*,**,*}**^{*}South China Normal Univ., China**^{**}Shenzhen Guohua Optoelect. Tech, China**^{***}Ac. of Shenzhen Guohua Optoelect., China*

----- Break -----

10:40 - 12:00

413

MEET3: Fundamental Components and Process Technologies

Chair: D. Pribat, Sungkyukwan Univ., Korea

Co-Chair: F. Templier, CEA-LETI, France

**MEET3 - 1: Invited Plastic Packaging Recycling Using Intelligent
10:40 Separation Technologies for Materials***J. Silver, P. G. Harris, G. R. Fern, E. Kosier^{*}, M. Kay^{*},
J. Mitchell^{*}**Brunel Univ. London, UK**^{*}Nextek, UK*

MEET3 - 2: Invited Efficient SPICE Model of TFT with Gaussian Density of States

11:00

*Y. Bonnassieux, S. Jung, G. Horowitz
Ecole Polytechnique, France*

MEET3 - 3: Invited Nanostructured Polymer Particles for Display Applications and Others Prepared by Self-Organization Processes

11:20

*H. Yabu
Tohoku Univ., Japan*

MEET3 - 4 Plasma Nano Texturing Photo Resistor for Pixel ITO Forming in 3-Mask TFT Process

11:40

*M. Lu, J. Yao, S. Qin, X. Liu, G. Huang, X. Cai, Z. Li
Shenzhen China Star Optoelect. Tech., China*

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

413

MEET4: EL Quantum Dots Technologies
Special Topics of Interest on Lighting and Quantum Dot Technologies

Chair: W. Milne, Univ. of Cambridge, UK

Co-Chair: X. W. Sun, Southern Univ. of S&T, China

MEET4 - 1: Invited Tandem QLED with Oxide Charge Generation Junction

13:30

*J. Jang, H.-M. Kim, E. Hwang
Kyung Hee Univ., Korea*

MEET4 - 2: Invited Full-Color Patterning of Quantum Dot Displays Based on Transfer Printing and Inkjet Printing

13:50

J. Han, D. Ko, J. Roh, H. Jung, Y. Lee, J. Sohn, W. K. Bae,
C. Lee
Seoul Nat. Univ., Korea
KIST, Korea

MEET4 - 3: Invited Solution-Processable Hybrid Light-Emitting Devices Based on Organic/Inorganic Nanocomposites

14:10

*F. Li, J. Lin, H. Hu, Y. Liu, T. Guo
Fuzhou Univ., China*

MEET4 - 4: *Invited* Quantum Dot Electroluminescence

14:30

*P. Kathirgamanathan, M. Kumaravel, N. Bramananthan,
S. Ravichandran, L. M. Bushby, S. Surendrakumar
Brunel Univ. London, UK*

----- Break -----

15:10 - 16:30

413

**MEET5: Emerging Quantum Dots and Nanotechnologies
*Special Topics of Interest on Lighting and Quantum Dot Technologies***

Chair: J. Jang, Kyung Hee Univ., Korea

Co-Chair: Y. Bonnassieux, Ecole Polytechnique, France

**MEET5 - 1: *Invited* What's Next for Quantum Dots? Delivering
15:10 the Ultimate Visual Experience to the Mainstream***H. Kim**Nanosys, USA***MEET5 - 2: *Invited* Heavy-Metal-Free Quantum Dots for
15:30 Consumer Applications***N. L. Pickett**Nanoco Techs., UK***MEET5 - 3: *Invited* Luminescent Nanocrystals and Devices for
15:50 Energy-Saving Quality Displays and Lighting***K. Wang, X. W. Sun**Southern Univ. of S&T, China***MEET5 - 4: *Invited* Optical Characteristics of Quantum Rod
16:10 Color Pixel Converter Combined with Twisted
Nematic LCD***M. Hasegawa, Y. Hirayama**Merck, Japan***Author Interviews**

16:30 – 17:10

Final Program

The final program of IDW/AD '16 will be available
on the website (<http://www.idw.or.jp/>)
from the middle of November

Workshop on Display Electronic Systems

Thursday, December 8

14:10 - 16:40

Multipurpose Hall

Poster DESp1: Display Electronic Systems

- DESp1 - 1 Development of 98-in. 8K HDR LCD Display and the Related Technologies**
C. Jung, Y. Bi, G. Sun, S. Zhou, Q. Yang, S. Li, L. Zhang, J. Jun, X. Dong
BOE Tech. Group, China
- DESp1 - 2 65-in. 8K4K Curved LCD**
L. W. Chu, L. Sun, W. C. Peng, J. J. Xie, W. Q. Zhao, A. L. Hu, Y. H. Fu, P. S. Kuo, B. Zhao, Y. Y. Chen
Shenzhen China Star Optoelect. Tech., China
- DESp1 - 3 Novel a-Si:H Gate Driver Circuit for In-Cell Touch TFT-LCDs**
W.-L. Wu, P.-C. Lai, M.-H. Cheng, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan
- DESp1 - 4 Novel Structure with Time Division Driving Method for a-Si:H TFT LCDs**
P.-C. Lai, C.-E. Wu, F.-H. Chen, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan
- DESp1 - 5 Peak Luminance Increase Method in RGBW AMOLED Display**
Z. Y. Lin, C. M. Hsu
AU Optronics, Taiwan
- DESp1 - 6 Most Power Saving WRGB Algorithm without Saturation Reduction**
J. J. Wu, K. Hsiao, W. W. Zheng, J. Fan
Shenzhen China Star Optoelect. Tech., China
- DESp1 - 7 Implant Scan Strategy for Ultra-High Gray Level Flat Panel Display**
C. Wang, L. Man, Y. Ji, F. Ran, M. Xu
Shanghai Univ., China

- DESp1 - 8 Challenges and Methods for Local Dimming of Long-Edge LCD TVs**
M. Grüning, M. Schmidt, D. Schäfer, C. Xu
 Saarland Univ., Germany
- DESp1 - 9 Photographing Steganography by Use of Spatio-Temporal Coding on a High-Frame-Rate LED Display**
M. Takahashi, H. Yamamoto
 Utsunomiya Univ., Japan
- DESp1 - 10 Image Super-Resolution Based on Multiple Linear Mappings**
H. Sun, W. Lu, L. He, X. Gao, M. Jou, S. S. Syu*, J. Li**
 Xidian Univ., China
 *Shenzhen China Star Optoelect. Tech., China

16:50 - 16:55

413

Opening

Opening Remarks

16:50

H. Okumura, Toshiba, Japan

16:55 - 18:20

413

DES1: DES 10th Anniversary

Chair: K. Morita, NTSEL, Japan
 Co-Chair: T. Kishigami, Mitsubishi Elec., Japan

DES1 - 1: *Invited* 10th Anniversary: Display Innovation - Past and Future of the DES-WS -

16:55

H. Okumura
 Toshiba, Japan

DES1 - 2: *Invited* Display Electronic Systems: Augmented Reality in the Next Decade

17:10

Y. Oyamada
 Tottori Univ., Japan

DES1 - 3: *Invited* Development of a New Head-Up Display System Using 2D Local Dimming with RGBW Technology

17:30

K. Sako, N. Takasaki, S. Aoki, T. Yata, T. Harada
 Japan Display, Japan

DES1 - 4: *Invited* Three-Dimensional Head-Up Display for Automobiles Using Super Multi-View Display
17:55

Y. Takaki

Tokyo Univ. of A&T, Japan

Author Interviews

18:20 – 18:50

Friday, December 9

10:40 - 12:05

502

DES2: High Image Quality Technology

Chair: T. Yamamoto, NHK, Japan

Co-Chair: A. Sakaigawa, Huawei, Japan

DES2 - 1: *Invited* Verification of Visually Lossless Image Quality for Display Stream Compression in Consumer Devices
10:40

D. Hoffman, W. Wang, D. Stoltzka

Samsung Display America R&D Lab., USA

DES2 - 2 Development of OLED Display Using Adaptive Temporal Aperture Control Driving Methods with Transition Area Insertion
11:05

T. Usui, Y. Takano, T. Yamamoto

NHK, Japan

DES2 - 3 Introduction of “Panel Display Enhance” Technology and Its Application on High ppi Display Device
11:25

Z. Zhang, L. Fang, H. Kusanagi, H. Ikeno, Y. Matsueda, C. Zhong, C. He, L. Wu, X. Zhou, P. Shen, J. Li, C. Tseng

XiaMen Tianma MicroElect., China

DES2 - 4 8K Ultra-High-Definition Medical Display System
11:45

L. Geng, C. Leng, R. Duan, C. Wei

BOE Tech. Group, China

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

201

PRJ4/DES3: 3D and Near Eye Displays
Special Topics of Interest on AR/VR and Hyper Reality

Chair: J. Reitterer, TriLite Techs., Austria
 Co-Chair: T. Hayashi, Okamoto Glass, Japan

PRJ4/DES3 - 1: ***Invited*** **Projection Mapping Technologies for AR**
 13:30 *D. Iwai*
Osaka Univ., Japan

PRJ4/DES3 - 2: ***Invited*** **Animating Static Objects by Illusion-Based Projection Mapping**
 13:50 *S. Nishida, T. Kawabe, T. Fukiage, M. Sawayama*
NTT, Japan

PRJ4/DES3 - 3: ***Invited*** **3D Billboards without Glasses**
 14:10 *J. Reitterer, F. Fidler, G. Schmid, C. Hambeck*
F. S. Julien-Wallsee, W. Leeb, U. Schmid**
TriLite Techs., Austria
**Tech. Univ. Wien, Austria*

PRJ4/DES3 - 4: **Smart Contact Lens Platform with a Deformed Active Artificial Iris**
 14:30 *A. V. Quintero**,**, R. Verplancke**,**, J. Vanfleteren**,***
*H. De Smet**,***
**Ghent Univ., Belgium*
***imec, Belgium*

----- Break -----

15:10 - 16:40

Main Hall

DES4/3D8: 3D Display and Sensor
Special Topics of Interest on AR/VR and Hyper Reality

Chair: Y. Oyamada, Tottori Univ., Japan
 Co-Chair: H. Yamamoto, Utsunomiya Univ., Japan

DES4/3D8 - 1: ***Invited*** **Displaying Real World Light Fields Using Stacked LCDs**
 15:10 *K. Takahashi, Y. Kobayashi, T. Fujii*
Nagoya Univ., Japan

DES4/3D8 - 2: ***Invited*** **Lock-in-Detection Based Time-of-Flight CMOS Image Sensors**
 15:35 *K. Yasutomi, S. Kawahito*
Shizuoka Univ., Japan

**DES4/
3D8 - 3
16:00**

**Holographic Augmented Reality Head-Up Display
with Eye Tracking and Steering Light Source**

*Y.-T. Kim, J. Seo, W. Seo, G. Sung, Y. Kim, H. Song, J. An,
C.-S. Choi, S. Kim, H. Kim, Y. Kim, Y. Kim, H.-S. Lee*

Samsung Elect., Korea

**DES4/
3D8 - 4
16:20**

**Flat Autostereoscopic 3D Display with Enhanced
Resolution Using a Wavelength Selective Filter
Barrier**

*S. Jurk, M. Kuhlmeier, R. Bartmann, B. Duckstein,
R. de la Barré*

Fraunhofer HHI, Germany

Author Interviews

16:40 – 17:10

Supporting Organizations:

Fukuoka Section, IEEE

The Society of Automotive Engineers of Japan (JSAE)

Special Interest Group on Mixed Reality (SIG-MR), The Virtual
Reality Society of Japan

Technical Committee on Electronic Information Displays, Electronics
Society, IEICE

Technical Committee on Image Engineering (IE), Information and
Systems Society, IEICE

Technical Group on Information Display, ITE

**IDW/AD '16 Tutorial
in Japanese**

Organized by SID Japan Chapter

Tuesday, Dec. 6, 2016

Room 412

Fukuoka International Congress Center

Detailed information will be announced at

<http://www.sid-japan.org/>

Workshop on Flexible Electronics

Wednesday, December 7

16:20 - 17:30

412

LCT3/FLX1: Flexible LCDs

Chair: S. Oka, Japan Display, Japan
 Co-Chair: M. Kimura, Nagaoka Univ. of Tech., Japan

LCT3/ FLX1 - 1: *Invited* Roll Plastic TFT-LCD with 20R Curvature Using Soft Backlight Unit

16:20

*N. Sugiura, P.-H. Chiu, W.-Y. Li, Z.-H. Chen, W.-J. Chiu,
 C.-R. Chang, T.-H. Huang, Y.-H. Lai, J.-K. Lu, Y.-C. Lin
 AU Optronics, Taiwan*

LCT3/ FLX1 - 2: *Invited* Substrate and Polymer-Wall Technologies for Future Foldable LCD Applications

16:45

*T. Ishinabe, Y. Obonai, S. Honda, Y. Shibata, H. Fujikake
 Tohoku Univ., Japan*

LCT3/ FLX1 - 3: Flexible LC Light Shutter with Polymer Wall Structure

17:10

*S.-M. Ji, J.-W. Huh, J.-H. Kim, Y.-G. Choi, B.-H. Yu,
 T.-H. Yoon
 Pusan Nat. Univ., Korea*

Author Interviews

17:40 – 18:20

Thursday, December 8

10:30 - 13:00

Multipurpose Hall

Poster FLXp1: Flexible Electronics

FLXp1 - 1 High Gas Barrier Thin Film Deposition by PECVD on Plastic Substrates Using a Novel and Highly Volatile Precursor, TG-41, for OLED Applications

10:30

*H. Chiba, K. Iwanaga, K. Tokuhisa
 TOSOH, Japan*

- FLXp1 - 2 Gas Barrier Touch Sensor for Flexible Top Emission AMOLED Encapsulation**
H.-F. Wei, J.-L. Chuang, T.-W. Chuang, K.-M. Chang, J.-C. Ho
ITRI, Taiwan
- FLXp1 - 3 Flexible OLEDs Fabricated on Transparent Chitin Nanofiber Paper**
D. Lee, H.-G. Im, Y. C. Han, E. G. Jeong, M. Rolandi^{}, Y. H. Kim, K. C. Choi, J. Jin^{**}, B.-S. Bae*
KAIST, Korea
^{*}*Univ. of California, Santa Cruz, USA*
^{**}*Univ. of Ulsan, Korea*
- FLXp1 - 4 Development of Organic Face Sealing Layer with Hygroscopic Particles for Encapsulation of OLEDs**
C.-J. Lee, Y. S. Park^{}, S. P. Hwang^{*}, M.-G. Kwak*
KETI, Korea
^{*}*DUKSAN Neolux, Korea*
- FLXp1 - 5 Roll-to-Roll Processing of Silver/ITO Continuous Deposition on Planarized Stainless Steel Foil**
Y. Hagiwara, H. Itoh^{}, T. Furukawa^{**}, H. Kobayashi^{**}, S. Yamaguchi, N. Yamada, J. Nakatsuka^{***}, M. Kodon^{**}, H. Nakada^{**}*
Nippon Steel & Sumitomo Metal, Japan
^{*}*Teijin, Japan*
^{**}*Yamagata Univ., Japan*
^{***}*Nippon Steel & Sumikin Materials, Japan*
- FLXp1 - 6 Patterned TFT Array by Roll-to-Roll Nano Imprint Lithography Method**
S. J. Kim^{ **}, J. H. Choi^{*}, K.-W. Kwon^{*}, S. M. Cho^{*}*
^{*}*Sungkyunkwan Univ., Korea*
^{**}*Samsung Display, Korea*
- FLXp1 - 7 Roll-to-Roll Fabrication Process of Silver-Nanowire Embedded Flexible Transparent Electrode for OLEDs**
C. Kim, E. Jung, Y. E. Sul, S. M. Cho
Sungkyunkwan Univ., Korea
- FLXp1 - 8 Flexible OLEDs Fabricated by Completely Roll-to-Roll Process**
H. Lee, E. Jung, C. Kim, S. M. Cho
Sungkyunkwan Univ., Korea

- FLXp1 - 9 Electroplated Metal Grid/Surface-Embedded Silver Nanowire Hybrid Structure: A Robust and Flexible Transparent Conducting Electrode Platform**
J. Jang, H.-G. Im, J. Jin^{}, J. Lee, J.-Y. Lee, B.-S. Bae*
KAIST, Korea
^{*}*Univ. of Ulsan, Korea*
- FLXp1 - 10 Improvement of Optical Properties of Transparent Polyimide Films for High-Temperature Curing**
J.-J. Lee^{,**}, S.-J. Kim^{**}, S. Kim^{**}, H. Choe^{**}, S.-H. Paek^{*,**}*
^{*}*Comps. & Materials for Info. Display, Korea*
^{**}*Kyung Hee Univ., Korea*
- FLXp1 - 11 Effect of Surface Treatment on the Optical and Electrical Properties of AgNW Films**
C. Wei, Y.-J. Lin
Tatung Univ., Taiwan
- FLXp1 - 12 To Improve Flexibility of Flexible LTPS-TFTs by Using Stress Absorbing Structure**
W. H. Chen, M. C. Hsieh, T. C. Chang, B. Y. Su, M. J. Yang, T. J. Wang
ITRI, Taiwan

----- Lunch -----

16:50 - 18:10

412

FMC5/FLX2: Manufacturing and Equipment

Chair: A. Fujita, JNC, Japan
 Co-Chair: M. Ito, Toppan Printing, Japan

FMC5/FLX2 - 1: Invited Development of the Flexible Surface Light Source Using Luminous Array Film Technology
 16:50

K. Awamoto, H. Hirakawa, J. Takahashi^{}, T. Hidaka^{*}, T. Shinoda*

Shinoda Plasma, Japan
^{*}*Shikoh Tech LLC, Japan*

FMC5/FLX2 - 2: Fabrication of Thin-Film Coatings on Large Size Ultrathin Glass for Flexible Devices
 17:10

M. Junghaehnel, T. Preussner, J. Westphalen
Fraunhofer Inst., Germany

FMC5/FLX2 - 3: Cutting Method for Electronic Device Made Using Ultrathin Glass
 17:30

N. Inayama
Nippon Elec. Glass, Japan

**FMC5/
FLX2 - 4
17:50** **Direct Imaging Exposure Equipment with High
Overlay Accuracy for Flexible Substrate in Roll-to-
Roll Method**

*Y. Kito, M. Hori, Y. Hayashida, T. Suzuki, H. Komiyama,
T. Watanabe, T. Kurashige, M. Kato, K. Nara*

Nikon, Japan

Author Interviews

18:10 – 18:50

Friday, December 9

9:00 - 10:05

501

FLX3: Flexible Device Technologies 1

Chair: M. Nakata, NHK, Japan

Co-Chair: T. Kamata, AIST, Japan

FLX3 - 1: 9:00 ***Invited* Substrates and Non-ITO Electrodes for
Flexible OLEDs**

*M. Koden, T. Furukawa, T. Yuki, H. Kobayashi, H. Nakada
Yamagata Univ., Japan*

**FLX3 - 2
9:25** **High Performance LTPS-TFT Fabricated on
Polyimide Substrate for Advanced Flexible Mobile
Applications**

*J. Kim, H. Kim, M. Baek, J. Lee, M. Park, C. Kim, Y. Hwang,
J. Park*

Samsung Display, Korea

**FLX3 - 3
9:45** **All-Printed Non-ITO Transparent Electrodes on
Ultra-Thin Glass for OLED Lighting**

T. Furukawa, M. Sakakibara, N. Kawamura, M. Koden
Yamagata Univ., Japan*

**Dai Nippon Printing, Japan*

----- Break -----

10:40 - 11:50

501

FLX4: Flexible Device Technologies 2

Chair: T. Eguchi, Sumitomo Bakelite, Japan

Co-Chair: Y. Uraoka, NAIST, Japan

**FLX4 - 1:
10:40** ***Invited* Edge Sealing Technologies for Foldable
AMOLED Display**

*G. Chen, F. Su, K.-T. Chen, J.-C. Ho, C.-C. Lee, J. Chen
ITRI, Taiwan*

FLX4 - 2: Invited Advances in Intense Pulse Light Solutions for Display Manufacturing

11:05

S. Ahmed
Xenon, USA

FLX4 - 3 3D Finite Element Analysis of Stress Distribution and Transfer Characteristics of Flexible IGZO TFT under Mechanical Bending

11:30

Y.-F. Niu, S.-F. Liu, J.-Y. Chiou, C.-Y. Huang, Y.-W. Chiu, M.-H. Lai, Y.-W. Liu
Chunghwa Picture Tubes, Taiwan

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:45

501

FLX5: Flexible Printed Electronics 1
Special Topics of Interest on Printed Electronics

Chair: H. Maeda, Dai Nippon Printing, Japan

Co-Chair: H. Endo, NEC, Japan

FLX5 - 1: Invited Organic Complementary Circuits Based on Solution-Processed Organic Transistors: Toward Flexible Electronics

13:30

M. Uno
Tech. Res. Inst. of Osaka Pref., Japan

FLX5 - 2: Invited High Mobility and Operational Stability of Top-Gate Organic Transistors Based on Solution-Processable Organic Semiconductors

13:55

T. Nagase, K. Takagi, R. Nakamichi, T. Kobayashi, H. Naito
Osaka Pref. Univ., Japan

FLX5 - 3: Invited Flexible/Stretchable Electronics Based on Carbon Nanotube Thin Films

14:20

Y. Ohno
Nagoya Univ., Japan

----- Break -----

15:10 - 16:15

501

FLX6: Flexible Printed Electronics 2
Special Topics of Interest on Printed Electronics

Chair: T. Furukawa, Yamagata Univ., Japan

Co-Chair: T. Shiro, Teijin, Japan

**FLX6 - 1: *Invited* Printing Ultrafine Conductive Pattern
 15:10 Through Ligand Conversion of Metal Nanoparticles
 on Photoactivated Surface**

*T. Yamada**AIST, Japan*

**FLX6 - 2
 15:35 New Alignment Technology for Printed Electronics
 over Large Flexible Substrates**

*Y. Mishima, M. Akiyama, T. Noudou, K. Hashimoto,
 N. Watanabe, T. Kamata**Japan Advanced Printed Elect. Tech. Res. Assn.,
 Japan*

**FLX6 - 3
 15:55 Inkjet Printing Equipment for Multiple Layered
 Electronics Devices on Roll-to-Roll Flexible
 Substrates**

*S. Tomoeda, H. Hirata, T. Hatakeyama**Toray Eng., Japan***Author Interviews**

16:30 – 17:10

Supporting Organizations:Technical Committee on Electronic Information Displays, Electronics
 Society, IEICE

Technical Group on Information Display, ITE

SID Display Week 2017

May 21 – 26, 2017

Los Angeles Convention Center

Los Angeles, California, USA

<http://www.sid.org/>

Workshop on Touch Panels and Input Technologies

Wednesday, December 7

13:00 - 13:05

201

Opening

Opening Remarks

13:00

N. Hashimoto, Citizen Holdings, Japan

13:05 - 14:20

201

INP1: AR and Interactive Systems
Special Topics of Interest on AR/VR and Hyper Reality

Chair: M. Sato, Tokyo Tech, Japan

Co-Chair: N. Hashimoto, Citizen Holdings, Japan

INP1 - 1: *Invited* Somatic Interfaces to Interact with Image Displays

13:05

*Y. Kume, T. Mizuno**

Tokyo Polytechnic Univ., Japan

**Univ. of Electro-Commun., Japan*

INP1 - 2: *Invited* Retinal Imaging Laser Eyewear with Focus-Free and Augmented Reality

13:30

M. Sugawara, M. Suzuki, H. Miyauchi

QD Laser, Japan

INP1 - 3: *Invited* String-Based Haptic Interface for Mobile Devices

13:55

K. Honda, S. Ma, Y. Qian*, M. Sato**

Tokyo Univ. of Marine S&T, Japan

**Tokyo Tech, Japan*

----- Break -----

Late-News Papers

Due Sep. 23, 2016

Submit a two-page camera-ready manuscript
 via IDW website:

<http://www.idw.or.jp/latenews.html>

14:40 - 16:05

201

INP2: Automotive HMI
Special Topics of Interest on Automotive Displays

Chair: N. Haneda, DENSO, Japan

Co-Chair: H. Haga, NLT Techs., Japan

INP2 - 1: 14:40 *Invited* Communication System Using Lights for Automobile

*N. Haneda**DENSO, Japan*

INP2 - 2: 15:05 Automotive Grade Haptic Feedback System Based on Automotive Grade Embedded Operating System

*F.-H. Tsao, C.-L. Li, W.-F. Chang, H.-H. Chen, H.-M. Su, W.-T. Tseng**Chunghwa Picture Tubes, Taiwan*

INP2 - 3: 15:25 Smart Steering Wheel with Swept Frequency Capacitive Sensing

Y. Ono, Y. Morimoto, R. Hattori, M. Watanabe, N. Michida*, K. Nishikawa***Kyushu Univ., Japan***Mazda Motor, Japan*

INP2 - 4: 15:45 Electrostatic Tactile Display for Interaction with Multiple-Unique Sensations

*D. Sugimoto, H. Haga, K. Shigemura**NLT Techs., Japan*

----- Break -----

16:20 - 17:30

201

INP3: Touch Panel

Chair: K. Yamazaki, Corning Japan, Japan

Co-Chair: Y. Teranishi, Japan Display, Japan

INP3 - 1: 16:20 *Invited* High-Definition In-Cell Touch Panel with Parallel Scanning Method

*K. Tada, K. Kida, S. Yamagishi, T. Maruyama,**J. Mugiraneza, Y. Sugita, H. Kawamori, T. Saitoh, H. Shioe**Sharp, Japan*

INP3 - 2: *Invited* **New In-Cell Capacitive Touch Panel Technology with Low Resistance Material Sensor and New Driving Method for Narrow Dead Band Display**

16:45

Y. Teranishi, K. Noguchi, H. Mizuhashi, K. Ishizaki, H. Kurasawa, Y. Nakajima
Japan Display, Japan

INP3 - 3 **Dynamic Tuning Fading Factor for Improving Position Tracking on Capacitive Touch Panels**

17:10

T.-C. Chu, C.-E. Wu, C.-Y. Chuang, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan

Author Interviews

17:40 – 18:20

Thursday, December 8

14:10 - 16:40

Multipurpose Hall

Poster INPp1: Interactive Technologies

INPp1 - 1 **Single Pixel Imaging with a High-Frame-Rate LED Digital Signage**

S. Onose^{}, M. Takahashi^{*}, H. Yamamoto^{*,**}, Y. Mizutani^{**,***}, T. Yasui^{**,****}*

^{}Utsunomiya Univ., Japan*

*^{**}JST, Japan*

*^{***}Osaka Univ., Japan*

*^{****}Tokushima Univ., Japan*

INPp1 - 2 **Advanced High Integration Touch In-Cell Display Module**

D.-W. Kuo, C.-Y. Hsu, H.-H. Chen, H.-M. Su, W.-T. Tseng
Chunghwa Picture Tubes, Taiwan

INPp1 - 3 **Gesture Recognition Using RGB-D Camera for 3D Virtual Reality and Interaction System**

Y.-Y. Hsu, L.-J. Zheng, H.-I. Ning, Y.-C. Fan
Taipei Univ. of Tech., Taiwan

INPp1 - 4 **Research on Touch Electrode Visibility of Touch Panel in Single Layer On-Cell Technology**

H. Fan, C. Wu, W. He, X. Yu, S. Yi
Chengdu BOE Optoelect. Tech., China

----- Break -----

16:50 - 18:00

201

INP4: Touch Panel and Force Interaction

Chair: Y. Tajitsu, Kansai Univ., Japan

Co-Chair: T. Nakabayashi, Sharp, Japan

INP4 - 1: Invited Smart Piezoelectric Fabric and Its Application

16:50

*Y. Tajitsu**Kansai Univ., Japan***INP4 - 2: Invited Pressure Sensitivity and Capacitive Touch Sensing Systems**

17:15

*T. Nakabayashi, M. Miyamoto**Sharp, Japan***INP4 - 3 Full In-Cell Force Touch Solution with LTPS Technology**

17:40

*C. Pan, C. Zhong, Q. He, X. Zhou, B. Shen, J. Li, Z. Zeng**XiaMen Tianma Microelect., China***Author Interviews**

18:10 – 18:50

Supporting Organizations:

The Forum for Advancement of Stereoscopic Three Dimensional Image Technology and Arts
 Holographic Display Artists and Engineers Club (HODIC),
 The Optical Society of Japan
 Human Interface Society
 Technical Group on Information Sensing Technologies, ITE

3DSA 2016

The 8th International Conference on 3D Systems and Applications
 Held in conjunction with IDW/AD '16

Fukuoka International Congress Center
 December 7-9, 2016

See page 133 for details

Free admission with your IDW/AD '16 registration name tag
<http://www.3dsa.org/>

Workshop on The 8th International Conference on 3D Systems and Applications

Wednesday, December 7

13:00 - 13:10

Main Hall

Opening

Opening Remarks

13:00

N. Inoue, Program Chair, 3DSA

M. Tsuchida, 3D-WS Chair, IDW

13:10 - 14:30

Main Hall

3DSA1/3D1: Holography

Chair: N. Hur, ETRI, Korea

Co-Chair: T. Kakue, Chiba Univ., Japan

**3DSA1/
3D1 - 1:
13:10** ***Invited* Digital Holographic Display for 360° Viewable
3D Color Image Rendering and Performance
Evaluation**

J. Kim, K. Hong, Y. Lim, J. Kim, H.-G. Choo

ETRI, Korea

**3DSA1/
3D1 - 2
13:30** **Projection-Type Holographic Three-Dimensional
Display**

*K. Wakunami, R. Oi, T. Senoh, Y. Ichihashi, M. Okui,
K. Yamamoto*

NICT, Japan

**3DSA1/
3D1 - 3
13:50** **Generation of Color Three-Dimensional Images by
Viewing-Zone Scanning Holographic Display**

Y. Matsumoto, Y. Takaki

Tokyo Univ. of A&T, Japan

**3DSA1/
3D1 - 4
14:10** **Development of Run-Length-Based Fourier
Transform**

T. Akamatsu, T. Shimobaba, T. Kakue, T. Ito

Chiba Univ., Japan

----- Break -----

14:40 - 16:00

Main Hall

3D2/3DSA2: Visualization & AR
Special Topics of Interest on AR/VR and Hyper Reality

Chair: J.-W. Kim, ETRI, Korea
 Co-Chair: H. Kakeya, Univ. of Tsukuba, Japan

3D2/ 3DSA2 - 1: Invited Progress on Head-Worn Display Technology for Augmented Reality

14:40 Y. Wang, D. Cheng, C. Xu
Beijing Inst. of Tech., China

3D2/ 3DSA2 - 2: Efficiency Balance for a See-Through Head-Mounted Display with Microstructures

15:00 X. C. Wang, K. W. Zhao, Y. D. Lu, C. Y. Chuang, M. C. Chan, J. W. Pan
Nat. Chiao Tung Univ., Taiwan

3D2/ 3DSA2 - 3: Changing Perceived Leg Length and Motion on Virtual Walking Generator

15:20 T. Hamada, K. Yoshiho, R. Kondo, Y. Ikei*, K. Hirota*, M. Kitazaki**
Toyohashi Univ. of Tech., Japan
 *Tokyo Metropolitan Univ., Japan
 **Univ. of Electro-Commun., Japan

3D2/ 3DSA2 - 4: Sparse Registration for Small Amount of Overlap between Point Clouds

15:40 L. Sun, Y. Manabe, N. Yata
Chiba Univ., Japan

----- Break -----

16:20 - 17:40

Main Hall

3DSA3/3D3: Autostereoscopic Display

Chair: Y.-P. Huang, Nat. Chiao Tung Univ., Taiwan
 Co-Chair: Y. Ichihashi, NICT, Japan

3DSA3/ 3D3 - 1: Spacetime-Multiplex Auto-Stereo Display

16:20 J. Huang, R. Chien, C. Shiau, R. Liou, T. Wang, Y. Wang, P. H. Fang, J. Yang, T. Hsu
Delta Elect., Taiwan

3DSA3/ 3D3 - 2: Parallax Barrier Based Autostereoscopic Display with a Deep Viewing Zone

16:40 H. Kakeya, H. Takahashi, K. Okada
Univ. of Tsukuba, Japan

**3DSA3/
3D3 - 3
17:00** **Time-Multiplexing Multi-View Three-Dimensional Display Using Virtually Moving Microlens Array**
M.-K. Park, B. Kim, K.-I. Joo, H. Park, Y.-S. Kim^{}, G. Lee^{*}, H.-R. Kim*
Kyungpook Nat. Univ., Korea
^{*}*ETRI, Korea*

**3DSA3/
3D3 - 4
17:20** **Design of Portable LF Display for High-Quality 3D View Generation**
G. Lee, H. Lee, H. Eum, W.-S. Cheong, N. Hur, B. Kim^{}, J. J. Kwon^{*}, I. Hwang^{*}*
ETRI, Korea
^{*}*Samsung Display, Korea*

Author Interviews

17:40 – 18:20

Thursday, December 8**9:00 - 10:20****Main Hall**

3DSA4/VHF4: Human Vision
Special Topics of Interest on AR/VR and Hyper Reality

Chair: S. Yano, Shimane Univ., Japan

Co-Chair: S. Uehara, Toshiba, Japan

**3DSA4/
VHF4 - 1:
9:00** ***Invited* Brain Function Analysis of Visual and Cross-Modal Information**
H. Ando^{,**}*
^{*}*NICT, Japan*
^{**}*Osaka Univ., Japan*

**3DSA4/
VHF4 - 2:
9:20** ***Invited* Human Vision Response in AR & VR**
Y.-S. Chen, Y.-P. Huang^{}, C.-Y. Chen^{**}*
Cathay General Hospital, Taiwan
^{*}*Nat. Chiao-Tung Univ., Taiwan*
^{**}*Nat. Taiwan Univ. of S&T, Taiwan*

**3DSA4/
VHF4 - 3
9:40** **Attentive Tracking of Moving Objects in Stereoscopic Viewing**
A. U. Rehman, Y. Nosaki^{}, K. Kihara^{*}, S. Ohtsuka^{*}*
Kagoshima Nat. College of Tech., Japan
^{*}*Kagoshima Univ., Japan*

**3DSA4/
VHF4 - 4
10:00** **Subjective Experiment Study on Binocular Overlap
Effect of Different Colors for the Augmented Reality
Near-Eye Display**

H. Zhang, Y. Tang, Y. Zheng, Y. Xie, B. Wang*

Southeast Univ., China

**S&T on Electro-optic Control Lab., China*

----- Break -----

Author Interviews

10:30 – 11:10

10:30 - 13:00

Multipurpose Hall

Poster 3Dp1/3DSAp1: 3D & Hyper-Realistic Systems and Applications 1

**3Dp1/
3DSAp1 - 1** **Research on Binocular Parallax 3D Display Device
with Liquid Crystal Barrier**

X. Liu, G. Yin, M. Peng, J. Shao, Y. Zhang, K. Chao

BOE Tech. Group, China

**3Dp1/
3DSAp1 - 2** **Does Eye Strain Decrease after Observing 3D
Imaging on the Light Field Display?**

*M. Shoda, T. Iwane, R. Niimi**

NIKON, Japan

**Niigata Univ., Japan*

**3Dp1/
3DSAp1 - 3** **Developing a Photometric Device for Generating
Quality Texture and Normal Map**

Y.-C. Chen, T.-H. Lin

Nat. Taiwan Univ. of S&T, Taiwan

**3Dp1/
3DSAp1 - 4** **Optical Approach for the Correlation of Micro Lens
from 3D Display System by Measurement System**

J. Seo, Y. M. Jeon, S. J. Huh, J. J. Kwon

Samsung Display, Korea

**3Dp1/
3DSAp1 - 5** **CNN-Based Pedestrian and Vehicle Detection Using
Stereo Camera**

G.-C. Lee, J. Yoo

Kwangwoon Univ., Korea

**3Dp1/
3DSAp1 - 6** **GPU Acceleration of Hologram Generation Based on
Ray-Sampling Plane**

H. Sato, T. Kakue, K. Wakunami, Y. Ichihashi*, R. Oi*,*

K. Yamamoto, T. Shimobaba, T. Ito*

Chiba Univ., Japan

**NICT, Japan*

- 3Dp1/
3DSAp1 - 7** **Mobile-Type Color Binocular Holographic Display System**
K.-J. Oh, M. S. Yoon, H.-G. Choo, J. Kim
ETRI, Korea
- 3Dp1/
3DSAp1 - 8** **Waveguide Holograms Attached on LCD Panel for a Hybrid Display System**
W.-K. Lin^{,**}, B.-S. Lin^{*}, W.-C. Su^{**}*
^{}Nat. Chiao Tung Univ., Taiwan*
*^{**}Nat. Changhua Univ. of Education, Taiwan*
- 3Dp1/
3DSAp1 - 9** **Holographic Device for Generating Collimated Beam by Using a LED**
Y.-J. You^{}, W.-K. Lin^{*,**}, Q.-Y. Chen^{*}, B.-S. Lin^{**}, W.-C. Su^{*}*
^{}Nat. Changhua Univ. of Education, Taiwan*
*^{**}Nat. Chiao Tung Univ., Taiwan*
- 3Dp1/
3DSAp1 - 10** **Study on Compact Holographic Head-Mounted Display for Augmented Reality**
E. Murakami, Y. Oguro, Y. Sakamoto
Hokkaido Univ., Japan
- 3Dp1/
3DSAp1 - 11** **Mixed Display Method for Real Objects and CG Texts in Electronic Holography**
R. Oi, Y. Ichihashi, T. Senoh, M. Okui, K. Wakunami, K. Yamamoto
NICT, Japan
- 3Dp1/
3DSAp1 - 12** **Improvement of Color Reproducibility of Full-Color 3D Display Using Binary Phase Distribution**
S. Harada, K. Nitta, O. Matoba
Kobe Univ., Japan
- 3Dp1/
3DSAp1 - 13** **Improvement of Full-Color Image Quality Using 1D Phase Modulation SLM by Iterative Fresnel Method with Dummy Area**
R. Toritani, K. Nitta, O. Matoba
Kobe Univ., Japan
- 3Dp1/
3DSAp1 - 14** **Speeding Up of Image Quality Improvement Using Amplitude Inverse Filter Method in Random Phase-Free Hologram**
Y. Nagahama, T. Shimobaba, T. Kakue, T. Ito
Chiba Univ., Japan
- 3Dp1/
3DSAp1 - 15** **Surface Quality Inspection of Micromechanical Parts Based on Phase-Shifting Methods**
T.-Y. Hsiao, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan

- 3Dp1/ 3DSAp1 - 16 Grey Relational Analysis of Subjective and Non-Subjective Evaluations during Watching 3D Films**
C.-Y. Chen, Y.-H. Su, P.-J. Wu^{}, Y.-K. Chen^{**}, B.-S. Lin^{*}*
Taiwan Univ. of S&T, Taiwan
^{*}*Nat. Chiao Tung Univ., Taiwan*
^{**}*Nat. Taichung Univ. of S&T, Taiwan*
- 3Dp1/ 3DSAp1 - 17 Evaluation of Perceived 3D Structure of Multi-View 3D Medical Image Based on Transparent Visualization: A Psychophysical Study**
Y. Sakano, Y. Kitaura^{}, K. Hasegawa^{*}, R. Lopez-Gulliver^{*}, H. Ando, S. Tanaka^{*}*
NICT, Japan
^{*}*Ritsumeikan Univ., Japan*
- 3Dp1/ 3DSAp1 - 18 Accommodation Measurement in VR Device of Google Cardboard Type**
H. Kang, H. Hong
Seoul Nat. Univ. of S&T, Korea
- 3Dp1/ 3DSAp1 - 19 Head Tracking Based Immersive Sound Reproduction for Virtual Reality Display**
C. J. Chun, K. M. Jeon, J. M. Moon, H. K. Kim, J. Yoo^{}*
Gwangju Inst. of S&T, Korea
^{*}*Kwangwoon Univ., Korea*
- 3Dp1/ 3DSAp1 - 20 Audio-Haptic Display for a Sense of Walking: Influence of Arm-Swing Interaction and User's Posture on Reproduced Walking in Real Space**
Y. Okuya, Y. Ikei^{}, K. Hirota^{**}, T. Amemiya^{***}, M. Kitazaki^{****}*
Univ. Paris-Sud, France
^{*}*Tokyo Metropolitan Univ., Japan*
^{**}*Univ. of Electro-Commun., Japan*
^{***}*NTT, Japan*
^{****}*Toyohashi Univ. of Tech., Japan*
- 3Dp1/ 3DSAp1 - 21 Experimental Assessment on Viewer's Impressions of 4K Ultra-High Definition and Multi-View 3D Images**
M. Okui, M. Makino, S. Yoshida, S. Iwasawa, K. Yamamoto
NICT, Japan
- 3Dp1/ 3DSAp1 - 22 Bodily Reliving Experience Based on Multisensory Passive Stimulation**
S. Imao, K. Yamada, N. Saka, M. Kurosawa, R. Koide, Y. Ikei, K. Hirota^{}, T. Amemiya^{**}, M. Kitazaki^{**}*
Tokyo Metropolitan Univ., Japan
^{*}*Univ. of Electro-Commun., Japan*
^{**}*Toyohashi Univ. of Tech., Japan*

----- Lunch -----

14:10 - 16:40

Multipurpose Hall

Poster 3DSAp2/3Dp2: 3D & Hyper-Realistic Systems and Applications 2

- 3DSAp2/
3Dp2 - 1** **Gradation Expression by Overlap of Voxels in Volumetric Display Composed of Photochromic Materials**
F. Kawashima, R. Hirayama, A. Shiraki, H. Nakayama, T. Kakue, T. Shimobaba, T. Ito*
Chiba Univ., Japan
**Nat. Astronomical Observatory of Japan, Japan*
- 3DSAp2/
3Dp2 - 2** **Viewing Zone Expansion by Blurring Edge Parts in Edge-Based DFD Display**
T. Yamamoto, H. Mizushina, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 3** **Depth Perception Difference by Only Two Light Sources with Various Distances in Non-Overlapped DFD Display**
R. Takano, H. Mizushina, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 4** **Large and Deep Edge-Based DFD Display by Blurring Edge Parts**
Y. Nagao, H. Mizushina, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 5** **Resolution Enhanced 3D Light Field Microscope with Liquid Crystal Wedge**
H.-H. Lee, P.-Y. Hsieh, W.-C. Chu, G. Saavedra, M.-C. Manuel*, Y.-P. Huang*
Nat. Chiao Tung Univ., Taiwan
**Univ. de València, Spain*
- 3DSAp2/
3Dp2 - 6** **Implementation of Artifacts Reduced Multi-View Display with High Quality 3D Images**
E. D. Lee, G. Lee, W.-S. Cheong, N. Hur
ETRI, Korea
- 3DSAp2/
3Dp2 - 7** **Floating 3D Interactive Device Using Special Pattern of Spatial-Multiplex**
S.-W. Hsu, C.-W. Shih, J.-Y. Wu, C.-H. Ting, Y.-P. Huang
Nat. Chiao Tung Univ., Taiwan
- 3DSAp2/
3Dp2 - 8** **Super Multiview Stereoscopic Display Using Time-Division Multiplexing Parallax Barrier**
K. Okada, H. Takeya
Univ. of Tsukuba, Japan

- 3DSAp2/
3Dp2 - 9** **Depth Enhancement of Light Field Microscopy with Fast-Response Hexagonal Liquid Crystal Micro-Lens Array**
H.-A. Lin, C.-Y. Chu, P.-Y. Hsieh, Y.-P. Huang, C.-H. Kuo
Nat. Chiao Tung Univ., Taiwan
- 3DSAp2/
3Dp2 - 10** **Increasing Luminance of Aerial Image Perpendicular to the Table Top**
T. Kobori, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 11** **Luminance Improvement of Aerial Double-Layered Display with Polarized AIRR**
S. Ito, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 12** **Wide-Screen Head-Up Display with a Projection Lens Array**
T.-S. Yeh, W.-C. Su
Nat. Changhua Univ. of Education, Taiwan
- 3DSAp2/
3Dp2 - 13** **Formation of Aerial Image with Motion Parallax Generated by Scattered Light on Arcs**
K. Kawai, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 14** **Aerial Imaging with Transparent Acrylic Cubes and Applications for Steganography**
S. Morita, S. Onose, T. Okamoto, H. Yamamoto
Utsunomiya Univ., Japan
- 3DSAp2/
3Dp2 - 15** **Colorizing 3D Objects in Free-Viewpoint Through a Transparent LCD**
H.-P. Chien, P.-L. Sun, Y.-C. Su, H.-C. Li, Y.-P. Pi
Nat. Taiwan Univ. of S&T, Taiwan
- 3DSAp2/
3Dp2 - 16** **Digital Cosmetic Coloring System for 3D Facial Images**
M.-H. Lin, Y.-P. Pi, H.-S. Chen, P.-L. Sun, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan
- 3DSAp2/
3Dp2 - 17** **New Method for Luminance Addition/Subtraction System by Using Polarization Operation in Layered TN-LCDs**
Z. Fan, H. Mizushima, S. Suyama
Tokushima Univ., Japan

- 3DSAp2/
3Dp2 - 18** **Effect of a Cell Gap with a Bi-Focal LC Lens on 3D Properties in Two-Way Multi-View 2D/3D Display Combining the Bi-Focal LC Lens and HVxDP Panel**
Y. Ibata, K. Masumura, T. Asai, J. Matsushima, T. Sato, K. Shigemura
NLT Techs., Japan
- 3DSAp2/
3Dp2 - 19** **LCD Panel Design for HMD Based on Retinal Projection Display**
S.-K. Zhou, W.-K. Lin**, W.-H. Lin*, B.-S. Lin**, W.-C. Su**
**Nat. Changhua Univ. of Education, Taiwan*
***Nat. Chiao Tung Univ., Taiwan*
- 3DSAp2/
3Dp2 - 20** **Based on Three Dimensional Gesture and Finger of Mid-Air Interaction Interface with OCR Handwriting**
M.-Y. Lee, S.-C. Yang, S.-C. Wang, Y.-C. Fan
Nat. Taipei Univ. of Tech., Taiwan
- 3DSAp2/
3Dp2 - 21** **Layered Multi-View DFD Display for Improving Perceived Depth and Image Shift Smoothness even at Small Number of Multi-View**
T. Eguchi, H. Mizushima, S. Suyama
Tokushima Univ., Japan
- 3DSAp2/
3Dp2 - 22** **Perception of Many Transparent Layered Images in the Depth-Fused 3D Display**
K. Sakamaki, H. Mizushima, S. Suyama
Tokushima Univ., Japan

----- Break -----

EXHIBITION

12:40 – 18:00 Wednesday, Dec. 7

10:00 – 18:00 Thursday, Dec. 8

10:00 – 14:00 Friday, Dec. 9

Lobby (2F, 4F)

Fukuoka International Congress Center

Free admission with your registration name tag

16:50 - 18:10

Main Hall

3D4/3DSA5: Image Processing

Chair: H. Saito, Keio Univ., Japan
 Co-Chair: K. Takahashi, Nagoya Univ., Japan

3D4/ 3DSA5 - 1 Face Tracking Method Using Depth Information

16:50 *J.-H. Lee, J. Yoo*
Kwangwoon Univ., Korea

3D4/ 3DSA5 - 2 3D Interactive System Based on Neural Network Training of Dual Cameras

17:10 *T.-Y. Lu, X. Li, C.-H. Chen, Y.-P. Huang*
Nat. Chiao Tung Univ., Taiwan

3D4/ 3DSA5 - 3 Synthesis of Top View Image and Detection of Obstacles Using Multiple Cameras for Monitoring Around a Truck

17:30 *K. Uehara, H. Saito, K. Yamamoto*, H. Sato**
Keio Univ., Japan
**Mitsubishi Fuso Truck & Bus, Japan*

3D4/ 3DSA5 - 4 Study on Band-Efficient System Design and Video Coding for Fixed & Mobile Hybrid UHD 3DTV System Using Scalable HEVC

17:50 *S.-H. Kim, K. H. Yong, K.-H. Jung**
ETRI, Korea
**Kookmin Univ., Korea*

Author Interviews

18:10 – 18:50

Friday, December 9

9:00 - 10:20

Main Hall

3DSA6/3D5: Volume Display and Display Analysis

Chair: T. Fujii, Nagoya Univ., Japan
 Co-Chair: D. Miyazaki, Osaka City Univ., Japan

3DSA6/ 3D5 - 1: Invited TSTF Up-Conversion Crystal as an Image Space of Electro-Holography

9:00 *J.-Y. Son, H. Lee, C.-K. Sung, B.-R. Lee*, H. Choo**
Konyang Univ., Korea
**ETRI, Korea*

**3DSA6/
3D5 - 2
9:20** **Aerial Projection of Three-Dimensional Color Motion Pictures Based on Electro-Holography with Parabolic Mirrors**

*T. Kakue, A. Uemura, T. Nishitsuji, T. Shimobaba, T. Ito
Chiba Univ., Japan*

**3DSA6/
3D5 - 3
9:40** **Viewing Zones Analysis of Convex Multi-View Autostereoscopic 3D Display with Barrier**

*J.-Y. Lai, W.-C. Lin, H. Y. Lin
Nat. Taiwan Univ., Taiwan*

**3DSA6/
3D5 - 4
10:00** **Period of Color Moiré Fringes in Contact-Type 3-D Displays**

*H. Lee, J. Kim, J.-Y. Son
Univ. of Konyang, Korea*

----- Break -----

10:40 - 12:00

Main Hall

3D6/3DSA7: Aerial Display

Chair: J.-Y. Son, Konyang Univ., Korea

Co-Chair: H. Mizushima, Tokushima Univ., Japan

**3D6/
3DSA7 - 1
10:40** **Aerial Volumetric Image Display Based on Retroreflective Imaging and Optical Scanning with a Slanted Rotating Mirror**

*D. Miyazaki, R. Tamaki, T. Mukai
Osaka City Univ., Japan*

**3D6/
3DSA7 - 2
11:00** **3D Volume Image Reconstruction in Space, Using Combined System of Light-Field Display and Aerial Imaging Devise, AIRR**

T. Iwane, M. Nakajima, H. Yamamoto
NIKON, Japan
Utsunomiya Univ., Japan

**3D6/
3DSA7 - 3
11:20** **Horizontal Parallax Table-Top Floating Image System with Toroidal-Lens Structure**

*P.-Y. Chou, C.-H. Tai, S. -H. Huang, Y.-P. Huang
Nat. Chiao Tung Univ., Taiwan*

**3D6/
3DSA7 - 4
11:40** **Visual and Thermal Floating Display with AIRR and WARM**

*T. Okamoto, S. Ito, K. Onuki, T. Itoigawa, H. Yamamoto
Utsunomiya Univ., Japan*

Author Interviews

12:00 – 12:40

----- Lunch -----

13:30 - 14:50

Main Hall

3D7/3DSA8: Technologies for 3D Imaging

Chair: Y. Takaki, Tokyo Univ. of A&T, Japan

Co-Chair: J. Arai, NHK, Japan

**3D7/
3DSA8 - 1
13:30** **Synthesis of Wide FOV RGB-D Images by
Registration and Upsampling of 3D Lidar with
Omnidirectional RGB Camera**

*H. Usami, S. Miyata, H. Saito**Keio Univ., Japan*

**3D7/
3DSA8 - 2
13:50** **DIBR Digital Image Watermarking Based on Depth
Image and DWT**

*Y. S. Lee, Y.-H. Seo, D.-W. Kim**Kwangwoon Univ., Korea*

**3D7/
3DSA8 - 3
14:10** **Spectral Color Reproduction of Multiband 3D
Projector Using Evolution Strategy**

*M. Tomizawa, N. Yata, Y. Manabe**Chiba Univ., Japan*

**3D7/
3DSA8 - 4
14:30** **Liquid Crystal Lens for Polarized 2D/3D Endoscopic
Imaging**

*A. Hassanfiroozi, Y.-P. Huang, H.-P. D. Shieh**Nat. Chiao Tung Univ., Taiwan*

----- Break -----

Author Interviews

16:30 – 17:10

Supporting Organizations:

The Virtual Reality Society of Japan

Society for Information Display (SID) Taipei Chapter

IDW/AD '16 COMMITTEES

ORGANIZING COMMITTEE

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FLX	M. Nakata	NHK

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FMC	M. Shinohara	Omron
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PRJ	K. Ohara	Texas Instr. Japan
DES	Y. Oyamada	Tottori Univ.
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MEET	Y. Nakai	Toshiba
FLX	A. Miyamoto	Univ. of Tokyo

Special Topics of Interest on Printed Electronics

Facilitator:	M. Nakata	NHK
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FMC	T. Tomono	Toppan Printing
OLED	T. Komatsu	JOLED
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Facilitator: K. Morita Nat. Traffic Safety & Environment Lab.

Program Committee:

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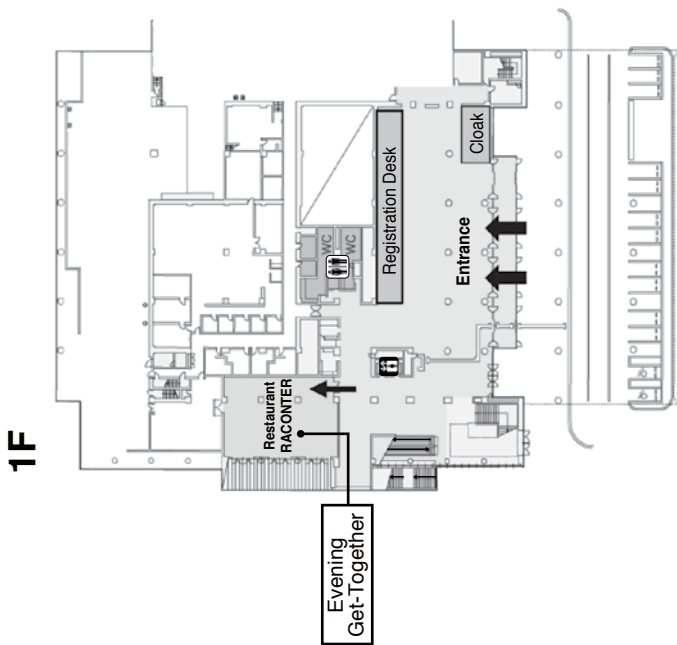
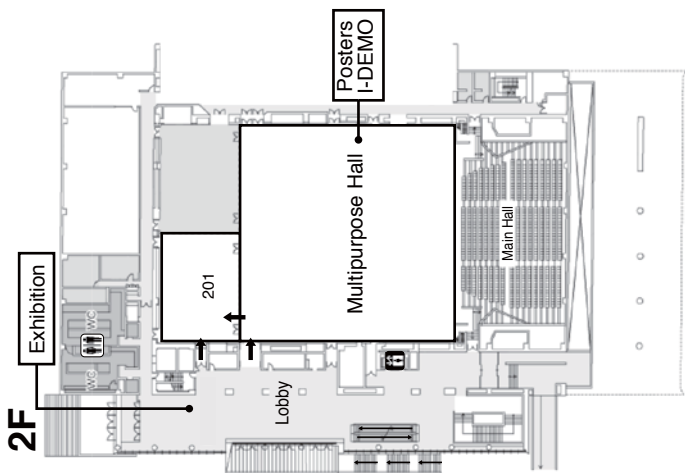
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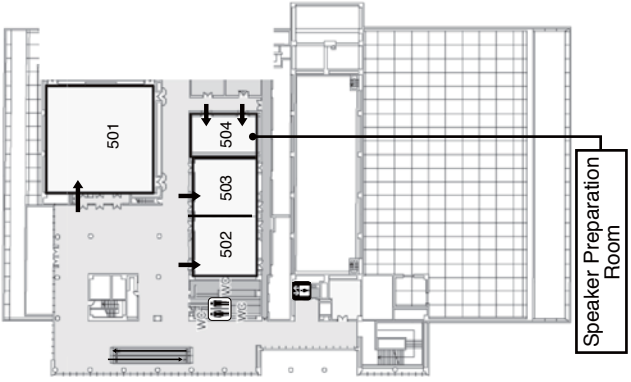
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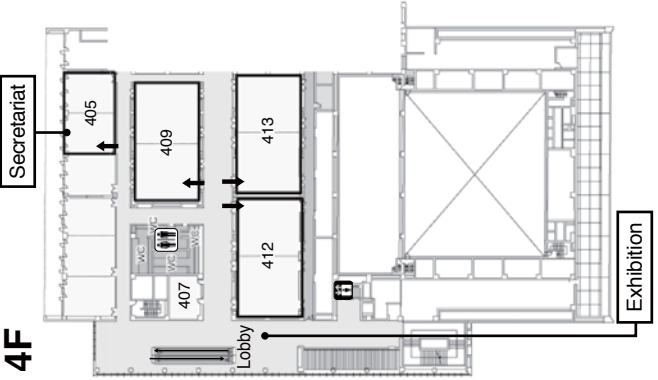


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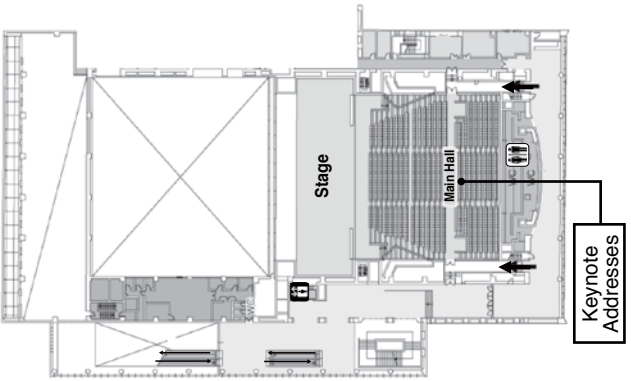
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IDW/AD '16 The 23rd International Display Workshops in conjunction with Asia Display 2016

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Area	No.in map (pxx)	Hotel Name	Phone	Rates (per person per night)		Internet Access		Nearest Train Station	
				Single	Twin/Double occupancy	LAN	Wi-Fi		
Halata	1	Ana Crowne Plaza Fukuoka	+81-92-471-7111	¥20,000	¥25,500	¥16,000	Free	Free	5 min. walk from JR/Subway Hakata Station
	2	Hotel Nikko Fukuoka	+81-92-482-1117	¥17,500	¥27,000	¥17,500	Free	Free	3 min. walk from JR/Subway Hakata Station
	3	NISHITETSU HOTEL CROOM HAKATA	+81-92-413-5454	¥13,800	¥22,000	¥13,800	Free	Free	4 min. walk from Hakata Gate of Hakata Station
	4	YAOJI HAKATA HOTEL	+81-92-483-5111	¥8,500	—	¥7,500	Free	Free	5 min. walk from JR Hakata Station
	5	SUTTON HOTEL HAKATA CITY	+81-92-433-2305	¥8,500~	—	¥6,500~	—	Free	5 min. walk from Hakata Gate of JR Hakata Station or exit West No. 21 of Subway Hakata Station
Nakasu	6	TOYO HOTEL	+81-92-474-1121	¥8,000	—	¥6,900	Free	Free	2 min. walk from Chikushi Gate of JR Hakata Station
	7	HAKATA EXCEL HOTEL TOKYU	+81-92-262-0109	¥13,500~	¥17,000~	¥9,000~	Free	Free	1 min. walk from Subway Nakasu Kawabata Station
	8	Imperial Palace CITY HOTEL Fukuoka	+81-92-262-2009	¥9,000~	¥12,500~	¥7,600~	Free*	Free	1 min. walk from the exit No. 2 of Nakasukawabata Station
	9	VESSEL INN HAKATA NAKASU	+81-92-271-4055	¥8,800~	—	¥7,500~	Free	Free	1 min. walk from the exit No. 3 of Subway Nakasu kawabata Station
	10	HOTEL HAKATA PLACE	+81-92-404-7770	¥8,500	—	¥8,000	Free	Free	11 min. by bus from Hakata Station
	11	Reisenkaku Hotel Kawabata	+81-92-281-1811	¥7,500~	—	¥6,900~	Free*	Free	3 min. walk from exit No. 5 of Subway Nakasu kawabata Station

*depends on the rooms

Cancellation Policy

15 or more days prior to the first night of stay No charge

2 to 14 days before the first night of stay 30% of room rate

1 day before the first night of stay 50% of room rate

The first night of stay or no notice given 100% of room rate

Hotel Reservation: Until Nov. 25

IDW / AD '16 Workshop Timetable

	1F	2F		3F	4F			5F						
Date	1F Lobby	Multipurpose Hall		201	Main Hall	409	412	413	501	502	503	2F, 4F Lobby		
Tue., Dec. 6	Registration 17:00 - 20:00	Evening Get-Together at RACOUNTER (1F) 18:00 - 20:00												
Wednesday, December 7	Registration 8:00 - 18:00			Opening, Keynote Addresses 9:30 - 11:35									Exhibition 12:40 - 18:00	
		Lunch												
		INP1 13:00 - 14:20		3DSA1/3D1 13:00 - 14:30	AMD1 13:00 - 14:25	LCT1 13:00 - 14:20	FMC1 13:00 - 14:20	OLED1 13:00 - 14:20	VHF1 13:00 - 14:05	UXC1 13:00 - 14:25				
		Break												
		INP2 14:40 - 16:05		3D2/3DSA2 14:40 - 16:00	AMD2 14:40 - 16:15	LCT2 14:40 - 15:40	FMC2 14:40 - 16:00	OLED2 14:40 - 16:00	EP1 14:40 - 15:55	UXC2/VHF2 14:40 - 16:00				
		Break												
		INP3 16:20 - 17:30		3DSA3/3D3 16:20 - 17:40	AMD3 16:20 - 17:50	LCT3/FLX1 16:20 - 17:30	FMC3 16:20 - 17:40	OLED3 16:20 - 17:20	PH1 16:20 - 17:30	VHF3 16:20 - 17:40				
		Author Interviews 17:40-18:20												
		Break												
		Banquet at ANA Crowne Plaza Fukuoka, Crowne Grand Ball Room (2F) 19:00 - 21:00												
Thursday, December 8	Registration 8:00 - 18:00			3DSA4/VHF4 9:00 - 10:20	MEET1 9:00 - 10:25	PRJ1 [†] 9:00 - 10:34	FMC4 9:00 - 10:20	OLED4 9:00 - 10:00	EP2 [†] 9:00 - 10:16	UXC3 [†] 9:00 - 10:28		Exhibition 10:00 - 18:00		
		Break												
		Poster LCTp1-2, FMCp, OLEDp, 3Dp1/3DSAp1, VHFp, PRJp, FLXp, UXcp 10:30 - 13:00	Innovative Demonstration Session 10:30 - 16:40	Author Interviews 10:30-11:10										
		Lunch		Lunch										
		Poster LCTp3, AMDp, PHp, 3DSA2p/3Dp2, EPp, MEETp, DESp, INPp 14:10 - 16:40												
		Break												
		INP4 16:50 - 18:00		3D4/3DSA5 16:50 - 18:10	AMD4/LCT4 16:50 - 18:20	FMC5/FLX2 16:50 - 18:10	DES1 16:50 - 18:20	OLED5 16:50 - 18:10	EP3 16:50 - 18:15	PH2 16:50 - 18:10				
Author Interviews 18:10 - 18:50														
Friday, December 9	Registration 8:00 - 13:00			PRJ2 9:00 - 10:20	3DSA6/3D5 9:00 - 10:20	AMD5 9:00 - 10:10	LCT5 9:00 - 10:05	MEET2 9:00 - 10:20	FLX3 9:00 - 10:05	VHF5 9:00 - 10:10		Exhibition 10:00 - 14:00		
		Break												
		PRJ3 10:40 - 12:00		3D6/3DSA7 10:40 - 12:00	AMD6 10:40 - 11:30	LCT6 10:40 - 12:00	MEET3 10:40 - 12:00	FLX4 10:40 - 11:50	DES2 10:40 - 12:05	VHF6 10:40 - 11:50				
		Author Interviews 12:00 - 12:40												
		Lunch												
		PRJ4/DES3 13:30 - 14:50		3D7/3DSA8 13:30 - 14:50	AMD7 13:30 - 14:35	LCT7 13:30 - 14:35	MEET4 13:30 - 14:50	FLX5 13:30 - 14:45	FMC6 13:30 - 14:50	VHF7 13:30 - 14:40				
		Break												
PRJ5 15:10 - 16:30		DES4/3D8 15:10 - 16:40	AMD8 15:10 - 16:35	MEET5 15:10 - 16:30		FLX6 15:10 - 16:15								
Author Interviews 16:30 - 17:10														

† Including Short Presentations

	Fri, Dec. 9	Thu., Dec. 8	Wed., Dec. 7	
	PM	AM	PM	AM
Oxide-Semiconductor TFT	AMD1: Oxide TFT, High-Stability TFTs 13:30 - 14:25		AMD1: Oxide TFT, High-Stability TFTs 13:30 - 14:25	
Multipurpose Hall	AMD2: Oxide TFT, High-Stability TFTs 14:40 - 16:15		AMD2: Oxide TFT, High-Stability TFTs 14:40 - 16:15	
201	AMD3: Oxide TFT, Novel Processes & Applications 15:10 - 16:35		AMD3: Oxide TFT, Novel Processes & Applications 15:10 - 16:35	
Lighting and Quantum Dot Technologies		PRJ3: Projection Components & Devices 10:40 - 12:00		
413	MEET1: Quantum Dot Technologies 13:30 - 14:50		MEET1: Quantum Dot Technologies 13:30 - 14:50	
501	MEET2: Emerging Quantum Dot Materials 15:10 - 16:30		MEET2: Emerging Quantum Dot Materials 15:10 - 16:30	
502				PH1: Phosphors for Lighting Application 16:20 - 17:30
Multipurpose Hall				
AR/VR and Hyper-Reality				
Main Hall				
201				MEET3: AR Systems 13:00 - 14:20
413				
501				
Printed Electronics				
Multipurpose Hall				
201				
Automotive Displays				
Multipurpose Hall				
502				
Multipurpose Hall				

IDW / AD '16 Session Navigator

	Wednesday, December 7				Thursday, December 8				Friday, December 9							
	PM				AM		PM		AM		PM					
User Experience & Cognitive Engineering	503				503		Multipurpose Hall									
	User Study	Human Factors*		A.I.	Interaction Design	A.I.	Posters									
3D/Hyper-Realistic Displays	Main Hall				Main Hall		Multipurpose Hall	Multipurpose Hall	Main Hall		Main Hall					
	Holography*	Visualization & AR*	Autostereoscopic Display*	A.I.	Human Vision*	A.I.	Posters	Posters	Image Processing*	A.I.	Volume Display & Display Analysis*	Aerial Display*	A.I.	Technologies for 3D Imaging*	3D Display & Sensor*	A.I.
Active-Matrix Displays	409						Multipurpose Hall	409			409		409			
	Oxide TFT: High-Stability TFTs	Oxide TFT: High-Performance TFTs	High-Resolution Displays	A.I.				Posters	Super-High-Resolution LCDs*	A.I.	Organic TFTs	Flexible Devices	A.I.	Oxide TFT: Solution-Processed TFTs	Oxide TFT: Novel Processes & Applications	A.I.
Display Electronic Systems							Multipurpose Hall	413				502		201		
								Posters	DES 10th Anniversary	A.I.		High Image Quality Technology	A.I.	3D & Near Eye Displays*		A.I.
Emissive Technologies			502				Multipurpose Hall	503						413		
			Phosphors for Lighting Application	A.I.				Posters	Phosphors for General	A.I.				EL Quantum Dots Technologies	Emerging Quantum Dots & Nanotechnologies	A.I.
Emerging Technologies & Novel Applications							Multipurpose Hall				413					
								Posters			Novel Materials & Components	Fundamental Components & Process Technologies	A.I.			
e-Paper		502			502		Multipurpose Hall	502								
		Color e-Paper Technologies		A.I.	Flexible e-Paper and IoT Application of e-Paper	A.I.		Posters	Novel Materials for e-Paper	A.I.						
Flexible Electronics							Multipurpose Hall	412			501		501			
								Posters	Manufacturing & Equipment*	A.I.	Flexible Device Technologies 1	Flexible Device Technologies 2	A.I.	Flexible Printed Electronics 1	Flexible Printed Electronics 2	A.I.
Interactive Technologies	201						Multipurpose Hall	201								
	AR & Interactive Systems	Automotive HMI	Touch Panel	A.I.				Posters	Touch Panel & Force Interaction	A.I.						
Human Factor	502	503			Main Hall		Multipurpose Hall				503		503			
	Ergonomics for Automotive Applications	Human Factors*	Display Measurement & Simulation	A.I.	Human Vision*	A.I.	Posters				Human Factors & Applications	Visual Comfort & Motion Sickness	A.I.	Color Vision & Illumination		A.I.
Liquid-Crystal Technologies	412						Multipurpose Hall	Multipurpose Hall	409		412		412			
	Photoalignment	Evaluations	Flexible LCDs*	A.I.				Posters	Posters	Super-High-Resolution LCDs*	A.I.	Novel LC Applications	Quality of LCDs	A.I.	High Performance LC Mode	A.I.
Manufacturing, Process & Equipment			413		413		Multipurpose Hall		412							
			Manufacturing Technologies	A.I.	Standardization on Printed Electronics	A.I.		Posters	Manufacturing & Equipment*	A.I.						
Materials & Components	413						Multipurpose Hall							502		
	Film Technologies	Display Optics & Information Technologies		A.I.				Posters						Materials & Components		A.I.
MEMS					409		Multipurpose Hall									
					Nanotechnologies for Display Applications	A.I.		Posters								
Organic Light-Emitting Displays & Organic Devices	501				501		Multipurpose Hall		501							
	OLED Displays	OLED for Lighting Applications	OLED Devices	A.I.	OLED Materials I	A.I.		Posters		OLED Materials II	A.I.					
Projection & Large Area Displays					412		Multipurpose Hall				201		201			
					Standardization & Characterization	A.I.		Posters			Wearable Display	Projection Components & Devices	A.I.	3D & Near Eye Displays*	Automotive Display	A.I.

A.I. Author Interviews
* Joint Session

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