Program Highlights ................................................................................ 8
General Information ............................................................................... 14
Travel Information .............................................................................. 17

CONTENTS

Plenary Sessions

Wednesday, December 7
IDW/AD ’16 Opening ........................................................................... 23
IDW/AD ’16 Keynote Addresses .......................................................... 23

Special Topics of Interest on Oxide-Semiconductor TFT

Wednesday, December 7
AMD1 Oxide TFT: High-Stability TFTs ............................................... 24
AMD2 Oxide TFT: High-Performance TFTs ........................................ 25
AMD3 High-Resolution Displays ........................................................ 25

Thursday, December 8
FMCP2 Poster: Oxide TFT Manufacturing ......................................... 26
AMDp1 Poster: Oxide TFTs ................................................................. 26
AMD4/LCT4 Super-High-Resolution LCDs ......................................... 28

Friday, December 9
AMD7 Oxide TFT: Solution-Processed TFTs ...................................... 29
AMD8 Oxide TFT: Novel Processes & Applications ............................ 29

Special Topics of Interest on Lighting and Quantum Dot Technologies

Wednesday, December 7
OLED2 OLED for Lighting Applications ........................................... 31
PH1 Phosphors for Lighting Application ............................................. 31

Thursday, December 8
OLEDp2 Poster: OLED/LIT Poster .................................................... 32
VHFp2 Poster: Applied Vision and Human Factors - Lighting Technologies... 32
PHP1 Poster: Phosphors for Lighting Application ................................ 33
MEETp1 Poster: Quantum Dots and Nanotechnologies ..................... 33

Friday, December 9
PRJ3 Projection Components and Devices ...................................... 34
MEET4 EL Quantum Dots Technologies ............................................. 35
MEET5 Emerging Quantum Dots and Nanotechnologies ..................... 35
Special Topics of Interest on AR/VR and Hyper Reality

**Wednesday, December 7**

INP1  AR and Interactive Systems.................................37
3D2/3DSA2  Visualization & AR........................................37

**Thursday, December 8**

3DSA4/VHF4  Human Vision...........................................38
3Dp1/3DSAp1  Poster: 3D & Hyper-Realistic Systems and Applications 1.....39
INPp1  Poster: Interactive Technologies ..................................40
3DSAp2/3Dp2  Poster: 3D & Hyper-Realistic Systems and Applications 2.....41

**Friday, December 9**

PRJ2  Wearable Display..................................................41
PRJ4/DES3  3D and Near Eye Displays..................................42
DES4/3D8  3D Display and Sensor.......................................42

Special Topics of Interest on Printed Electronics

**Thursday, December 8**

FMC4  Standardization on Printed Electronics..........................44
OLEDp3  Poster: OLED/PE Poster........................................45

**Friday, December 9**

FLX5  Flexible Printed Electronics 1....................................45
FLX6  Flexible Printed Electronics 2....................................46

Special Topics of Interest on Automotive Displays

**Wednesday, December 7**

VHF1  Ergonomics for Automotive Applications..........................47
INP2  Automotive HMI....................................................47

**Thursday, December 8**

VHFp1  Poster: Applied Vision and Human Factors - Automotive Applications..................................................48
3DSAp2/3Dp2  Poster: 3D and Hyper-Realistic Systems and Applications 2..................................................48

**Friday, December 9**

PRJ5  Automotive Displays..................................................49

Topical Session on User Experience and Cognitive Engineering

**Wednesday, December 7**

Opening.................................................................50
UXC1  User Study........................................................50
UXC2/VHF2  Human Factors............................................51
Thursday, December 8
UXC3  Interaction Design.............................................................. 51
UXCp  Short Presentation: User Experience .................................. 52
UXCp1 Poster: User Experience .................................................... 52

Workshop on LC Science and Technologies

Wednesday, December 7
LCT1  Photoalignment ................................................................. 53
LCT2  Evaluations ...................................................................... 53
LCT3/FLX1  Flexible LCDs ......................................................... 54

Thursday, December 8
LCTp1 Poster: Evaluations .......................................................... 55
LCTp2 Poster: Novel LC Applications .......................................... 56
LCTp3 Poster: Quality of LCDs .................................................... 57
AMD4/LCT4 Super-High-Resolution LCDs .................................... 58

Friday, December 9
LCT5  Novel LC Applications ...................................................... 59
LCT6  Quality of LCDs ................................................................. 60
LCT7  High Performance LC Mode ............................................... 60

Workshop on Active Matrix Displays

Wednesday, December 7
AMD1  Oxide TFT: High-Stability TFTs ...................................... 62
AMD2  Oxide TFT: High-Performance TFTs ................................. 63
AMD3  High-Resolution Displays .................................................. 63

Thursday, December 8
AMDp1 Poster: Oxide TFTs ......................................................... 64
AMDp2 Poster: Active-Matrix Devices ......................................... 66
AMD4/LCT4 Super-High-Resolution LCDs .................................... 67

Friday, December 9
AMD5  Organic TFTs ................................................................. 68
AMD6  Flexible Devices .............................................................. 69
AMD7  Oxide TFT: Solution-Processed TFTs ............................... 69
AMD8  Oxide TFT: Novel Processes & Applications ....................... 70

Workshop on FPD Manufacturing, Materials and Components

Wednesday, December 7
FMC1  Film Technologies ........................................................... 71
FMC2  Display Optics and Information Technologies ................... 71
FMC3  Manufacturing Technologies ............................................. 72
Thursday, December 8
FMC4  Standardization on Printed Electronics ............................... 73
FMCp1 Poster: FPD Manufacturing, Materials and Components ........... 74
FMCp2 Poster: Oxide TFT Manufacturing .......................................... 74
FMC5/FLX2 Manufacturing and Equipment ......................................... 75

Friday, December 9
FMC6 Materials and Components ..................................................... 76

Workshop on Inorganic Emissive Display and Phosphors

Wednesday, December 7
PH1  Phosphors for Lighting Application .......................................... 77

Thursday, December 8
PHP1 Poster: Phosphors for Lighting Application ............................. 77
PHP2 Poster: Phosphors for General ................................................. 78
PH2 Poster: Phosphors for General .................................................. 79

Workshop on OLED Displays and Related Technologies

Wednesday, December 7
OLED1 OLED Displays .................................................................... 80
OLED2 OLED for Lighting Applications ........................................... 80
OLED3 OLED Devices .................................................................... 81

Thursday, December 8
OLED4 OLED Materials I ................................................................. 82
OLEDp1 Poster: OLED Poster ......................................................... 82
OLEDp2 Poster: OLED/LIT Poster .................................................. 84
OLEDp3 Poster: OLED/PE Poster .................................................. 85
OLED5 OLED Materials II ............................................................... 85

Workshop on 3D/Hyper-Realistic Displays and Systems

Wednesday, December 7
Opening ......................................................................................... 87
3DSA1/3D1 Holography .................................................................. 87
3D2/3DSA2 Visualization & AR ....................................................... 88
3DSA3/3D3 Autostereoscopic Display .............................................. 88

Thursday, December 8
3Dp1/3DSAp1 Poster: 3D & Hyper-realistic Systems and Applications 1 ........................................ 89
3DSAp2/3Dp2 Poster: 3D & Hyper-realistic Systems and Applications 2 .................................. 92
3D4/3DSA5 Image Processing .......................................................... 95

Friday, December 9
3DSA6/3D5 Volume Display and Display Analysis ............................. 95
3D6/3DSA7  Aerial Display ..............................................................96
3D7/3DSA8  Technologies for 3D Imaging ....................................97
DES4/3D8  3D Display and Sensor ................................................97

Workshop on Applied Vision and Human Factors

Wednesday, December 7
Opening ..........................................................................................99
VHF1  Ergonomics for Automotive Applications .........................99
UXC2/VHF2  Human Factors ..........................................................100
VHF3  Display Measurement and Simulation ..............................100

Thursday, December 8
3DSA4/VHF4  Human Vision .........................................................101
VHFp1  Poster: Applied Vision and Human Factors - Automotive Applications ....102
VHFp2  Poster: Applied Vision and Human Factors - Lighting Technologies ....102
VHFp3  Poster: Applied Vision and Human Factors ..........................102

Friday, December 9
VHF5  Human Factors and Applications ......................................103
VHF6  Visual Comfort and Motion Sickness .................................103
VHF7  Color Vision and Illumination .............................................104

Workshop on Projection and Large-Area Displays and Their Components

Thursday, December 8
Opening ..........................................................................................105
PRJ1  Standardization and Characterization ...................................105
PRJp  Short Presentation: Projection Displays ..............................106
PRJp1  Poster: Projection Displays .................................................106

Friday, December 9
PRJ2  Wearable Display ...............................................................106
PRJ3  Projection Components and Devices .....................................107
PRJ4/DES3  3D and Near Eye Displays ..........................................108
PRJ5  Automotive Display .............................................................108

Workshop on Electronic Paper

Wednesday, December 7
Opening ..........................................................................................110
EP1  Color e-Paper Technologies ..................................................110

Thursday, December 8
EP2  Flexible e-Paper and IoT Application of e-Paper ....................111
EPP  Short Presentation: Electronic Paper .......................................111
EPP1  Poster: Electronic Paper .......................................................111
EP3  Novel Materials for e-Paper ...................................................112
Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Thursday, December 8
Opening ............................................................................................ 113
MEET1 Nanotechnologies for Display Applications ................... 113
MEETp1 Poster: Quantum Dots and Nanotechnologies ............ 114
MEETp2 Poster: Novel Materials and Components .................. 114

Friday, December 9
MEET2 Novel Materials and Components................................. 115
MEET3 Fundamental Components and Process Technologies .... 115
MEET4 EL Quantum Dots Technologies .................................. 116
MEET5 Emerging Quantum Dots and Nanotechnologies .......... 117

Workshop on Display Electronic Systems

Thursday, December 8
DESp1 Poster: Display Electronic Systems ................................. 118
Opening ............................................................................................ 119
DES1 DES 10th Anniversary .......................................................... 119

Friday, December 9
DES2 High Image Quality Technology .................................... 120
PRJ4/DES3 3D and Near Eye Displays ...................................... 121
DES4/3D8 3D Display and Sensor ............................................. 121

Workshop on Flexible Electronics

Wednesday, December 7
LCT3/FLX1 Flexible LCDs .......................................................... 123

Thursday, December 8
FLXp1 Poster: Flexible Electronics ........................................... 123
FMC5/FLX2 Manufacturing and Equipment .......................... 125

Friday, December 9
FLX3 Flexible Device Technologies 1 ...................................... 126
FLX4 Flexible Device Technologies 2 ...................................... 126
FLX5 Flexible Printed Electronics 1 ......................................... 127
FLX6 Flexible Printed Electronics 2 ......................................... 128

Workshop on Touch Panels and Input Technologies

Wednesday, December 7
Opening ............................................................................................ 129
INP1 AR and Interactive Systems .............................................. 129
INP2 Automotive HMI ............................................................... 130
INP3 Touch Panel ................................................................. 130
Thursday, December 8
INPp1  Poster: Interactive Technologies .............................................. 131
INP4  Touch Panel and Force Interaction ............................................... 131

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

Wednesday, December 7
Opening ............................................................................................. 133
3DSA1/3D1  Holography ...................................................................... 133
3D2/3DSA2  Visualization & AR ........................................................... 134
3DSA3/3D3  Autostereoscopic Display ............................................... 134

Thursday, December 8
3DSA4/VHF4  Human Vision ............................................................... 135
3Dp1/3DSAp1  Poster: 3D & Hyper-realistic Systems and Applications 1 .... 136
3DSAp2/3Dp2  Poster: 3D & Hyper-realistic Systems and Applications 2 .... 139
3D4/3DSA5  Image Processing .............................................................. 142

Friday, December 9
3DSA6/3D5  Volume Display and Display Analysis .............................. 142
3D6/3DSA7  Aerial Display .................................................................. 143
3D7/3DSA8  Technologies for 3D Imaging ........................................... 144

IDW/AD ‘16 Workshop Timetable .................................................... Pullout
IDW/AD ‘16 Special Topics of Interest Navigator .................................. Pullout
IDW/AD ‘16 Session Navigator ............................................................ Pullout
IDW/AD ‘16 Registration and Accommodations .................................. Pullout
IDW/AD ‘16 Committees ..................................................................... 145

Floor Map ........................................................................................... 155
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 example, 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 rewratable 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 (ARMJ) / 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
Fukuoka International Congress Center
2-1, Sekijo-machi
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.

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

*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)
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>At the conference site</td>
<td>¥8,000</td>
</tr>
<tr>
<td>Airmail after the conference</td>
<td>¥12,000</td>
</tr>
<tr>
<td>Domestic mail after the conference</td>
<td>¥10,000</td>
</tr>
</tbody>
</table>
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/
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)：

(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 Shrine (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/
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
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.
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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topic</th>
<th>Speakers</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00</td>
<td>AMD1 - 1: Oxide TFT: High-Stability TFTs</td>
<td><strong>Invited Importance of Oxygen- and Hydrogen-Related Defects to Develop New Amorphous Oxide Semiconductor Materials</strong></td>
<td>T. Kamiya, J. Kim, K. Ide, H. Kumomi, H. Hosono</td>
<td>Tokyo Tech, Japan</td>
</tr>
<tr>
<td>14:05</td>
<td>AMD1 - 4: Achievement of High-Performance and Environmentally Stable TFTs by Introducing Hybrid-Phase Microstructure into InSnZnO Channels</td>
<td></td>
<td>S. Deng, R. Chen, G. Li, Z. Xia, K. Wang*, M. Zhang, W. Zhou, M. Wong, H.-S. Kwok</td>
<td>Hong Kong Univ. of S&amp;T, Hong Kong *Jinan Univ., China</td>
</tr>
</tbody>
</table>

----- Break -----
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/Al$_2$O$_3$ 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
ETRI, Korea
*KAIST, Korea

------- Break -------

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
Sharp, Japan
AMD3 - 3
17:10
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
Chunghwa Picture Tubes, Taiwan

AMD3 - 4
17:30
19.5-in. 4K LCD Fabricated with Novel LTPS Technology at Gen10 Line
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 SiO$_2$ 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
Shenzhen China Star Optoelect. Tech., China
AMDp1 - 2 Bias and Temperature Reliability of Amorphous Indium Tin Zinc Oxide Thin Film Transistor on SiO₂, SiNx, 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

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
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
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
Nat. Changhua Univ. of Education, Taiwan

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: 16:50
Invited 510 ppi 8K4K LTPS-TFT LCD with 30 Hz to 120 Hz Frame-Rate Driving
Japan Display, Japan

AMD4/LCT4 - 2: 17:15
Invited Development of a 27-in. 8K4K LCD Prototype Using IGZO TFT Backplane
S. Yamada, F. Shimoshikiryoh, 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
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

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
Invited
Large-Scale Printed Sol-Gel Metal Oxide Dielectrics
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
*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
Chunghwa Picture Tubes, Taiwan
*Evonik Resource Efficiency, Germany

----- Break -----
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

Novel Back-Channel-Etch Type In-Ga-Zn-Sn-O Thin Film Transistor with 4-Mask Technology


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

High Density Plasma Sputtered InZnSnO Thin-Film Transistors Fabricated by Back-Channel Etching Method on Flexible Polyimide Substrate


*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


"Southern Univ. of S&T, China"
"Tianjin Univ., China"
"Hubei Univ., China"

**OLED2 - 3** OLED Lighting for Photorejuvenation
15:20


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 Acad. of Sci., China

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

M. Kanno, M. Abe, T. Kusunoki

Dexerials, Japan

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


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 -----
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
Xī'an Jiaotong Univ., China

PHp1 - 4  Synthesis and Luminescence Properties of Novel Eu²⁺-Doped BaGa₂Si₅S₁₄ and Ba₂Ga₈Si₅S₁₆ 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

S. Matsumoto, R. Kanai, M. Kimura, A. Kato
Nagaoka Univ. of Tech., Japan
### PRJ3: Projection Components and Devices

#### Chair:
S. Shikama, Setsunan Univ., Japan

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:40</td>
<td>Invited Experimental Characterization of Oxide Semiconductors Based SLM for Practical Use</td>
<td>S. Nakashima, W. Nomura, N. Tate</td>
<td>Kyushu Univ., Japan</td>
</tr>
<tr>
<td>11:00</td>
<td>Improvement of Output Power Dependence on Temperature in 638-nm BA-LD</td>
<td>T. Yagi, K. Kuramoto, S. Abe, M. Kusunoki, M. Miyashita</td>
<td>Mitsubishi Elec., Japan</td>
</tr>
<tr>
<td>11:20</td>
<td>Liquid Crystal Based Beam Deflectors</td>
<td>D. Cuypers, X. Shang, H. De Smet</td>
<td>imec, Belgium</td>
</tr>
<tr>
<td>11:40</td>
<td>Very Compact Waveguide-Type RGB Coupler with Multimode Converter</td>
<td>J. Sakamoto, S. Katayose, K. Watanabe, M. Itoh, T. Hashimoto</td>
<td>NTT, Japan</td>
</tr>
</tbody>
</table>

#### Author Interviews
12:00 – 12:40

----- Lunch -----
13:30 - 14:50 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. Kumaraverl, N. Bramanathan, S. Ravichandran, L. M. Bushby, S. Surendrakumar
Brunel Univ. London, UK

----- Break -----
MEET5 - 3: Invited  Luminescent Nanocrystals and Devices for 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 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/
Opening of Workshop on Touch Panels and Input Technologies

Opening Remarks
13:00

N. Hashimoto, Citizen Holdings, Japan

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 ------

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
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

Changing Perceived Leg Length and Motion on Virtual Walking Generator
T. Hamada, K. Yoshiho, R. Kondo, Y. Ikee*, K. Hirota*, M. Kitazaki**
Toyohashi Univ. of Tech., Japan
*Tokyo Metropolitan Univ., Japan
**Univ. of Electro-Commun., Japan

Sparse Registration for Small Amount of Overlap between Point Clouds
L. Sun, Y. Manabe, N. Yata
Chiba Univ., Japan

----- Break -----
Thursday

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 -----
3Dp1/ Accommodation Measurement in VR Device of Google Cardboard Type
H. Kang, H. Hong
Seoul Nat. Univ. of S&T, Korea

3Dp1/ 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/ 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/ 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 -----
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  
**PRJ2: Wearable Display**

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

**PRJ2 - 1**  
**9:00**  
Wearable See-Through Retinal Projector Using 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**  
**9:20**  
Optical Design of Wide Viewing Eyeglass-Type Wearable Device Using Multiple Reflection Element  
S. Sawada, A. Moriya, T. Sasaki, J. Yamaguchi, M. Baba  
Toshiba, Japan

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

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

**Author Interviews**  
12:00 – 12:40

----- Lunch -----
### PRJ4/DES3: 3D and Near Eye Displays

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors/Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30</td>
<td>PRJ4/DES3 - 1</td>
<td>Invited Projection Mapping Technologies for AR</td>
<td>D. Iwai, Osaka Univ., Japan</td>
</tr>
<tr>
<td>13:50</td>
<td>PRJ4/DES3 - 2</td>
<td>Invited Animating Static Objects by Illusion-Based Projection Mapping</td>
<td>S. Nishida, T. Kawabe, T. Fukiage, M. Sawayama, NTT, Japan</td>
</tr>
<tr>
<td>14:30</td>
<td>PRJ4/DES3 - 4</td>
<td>Smart Contact Lens Platform with a Deformed Active Artificial Iris</td>
<td>A. V. Quintero, R. Verplancke, J. Vanfleteren, H. De Smet, Ghent Univ., Belgium, imec, Belgium</td>
</tr>
</tbody>
</table>

------ Break ------

### DES4/3D8: 3D Display and Sensor

**Chair:** Y. Oyamada, Tottori Univ., Japan  
**Co-Chair:** H. Yamamoto, Utsunomiya Univ., Japan

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors/Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:10</td>
<td>DES4/3D8 - 1</td>
<td>Invited Displaying Real World Light Fields Using Stacked LCDs</td>
<td>K. Takahashi, Y. Kobayashi, T. Fujii, Nagoya Univ., Japan</td>
</tr>
</tbody>
</table>
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

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/
FMC4: Standardization 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
### Poster OLEDp3: OLED/PE Poster

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>OLEDp3 - 3</strong> Multiple Horizontal-Dip-Coating of Small Molecular Emission Layers for Solution-Processable Organic Light-Emitting Devices</td>
<td>H. G. Jeon, W. S. Lee, J. N. Huh, Y.Aggarwal, B. Park</td>
<td>Kwangwoon Univ., Korea</td>
</tr>
</tbody>
</table>

----- Lunch -----

### Friday, December 9

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30 - 14:45</td>
<td>501</td>
<td><strong>FLX5: Flexible Printed Electronics 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td></td>
<td><strong>FLX5 - 2</strong>: Invited High Mobility and Operational Stability of Top-Gate Organic Transistors Based on Solution-Processable Organic Semiconductors</td>
<td>T. Nagase, K. Takagi, R. Nakamichi, T. Kobayashi, H. Naito</td>
<td>Osaka Pref. Univ., Japan</td>
</tr>
<tr>
<td>14:20</td>
<td></td>
<td><strong>FLX5 - 3</strong>: Invited Flexible/Stretchable Electronics Based on Carbon Nanotube Thin Films</td>
<td>Y. Ohno</td>
<td>Nagoya Univ., Japan</td>
</tr>
</tbody>
</table>

----- Break -----
FLX6: Flexible Printed Electronics 2

Chair: T. Furukawa, Yamagata Univ., Japan
Co-Chair: T. Shiro, Teijin, Japan

FLX6 - 1: Invited Printing Ultrafine Conductive Pattern Through Ligand Conversion of Metal Nanoparticles on Photoactivated Surface
15:10
T. Yamada
AIST, Japan

FLX6 - 2: New Alignment Technology for Printed Electronics over Large Flexible Substrates
15:35
Y. Mishima, M. Akiyama, T. Noudou, K. Hashimoto, N. Watanabe, T. Kamata
Japan Advanced Printed Elect. Tech. Res. Assn., Japan

FLX6 - 3: Inkjet Printing Equipment for Multiple Layered Electronics Devices on Roll-to-Roll Flexible Substrates
15:55
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 Depth Perception When Using Automotive 3D Head-Up Display
13:05
R. Noguchi, T. Daimon, T. Mori*, K. Kasazumi*
Keio Univ., Japan
*Panasonic, Japan

VHF1 - 2: Traffic Signal with PWM Coding for Visible Light Communication
13:25
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/Display
13:45
Korea Inst. of Lighting & Tech., Korea
*Seoyon Elect., Korea
**Dilussion, Korea

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

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
15:10 - 16:30  
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  
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  
Y. Tsuchiya, R. Kawaji, S. Iwamoto  
Honda R&D, Japan

PRJ5 - 3  
Integrated RGB Laser Light Module for Augmented and Virtual Reality Applications  
TriLite Techs., Austria  
*Tech. Univ. Wien, Austria

PRJ5 - 4  
Development of Head-Up Display for Railway Vehicle  
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 -----
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: Invited Development of Japanese Electronic Text Readers Based on Perceptual Mechanisms of Reading
14:40 J. Kobayashi***, E. Shinbori*, T. Kawashima**
*Dai Nippon Printing, Japan
**Future Univ. Hakodate, Japan

UXC2/ VHF2 - 2: Match Optimization of LED and Color Filter Spectrum for LCD Optics
15:00 H. Chen, T. Zhou, P. Shen, C. Tseng
XiaMen Tianma Microelect., China

UXC2/ VHF2 - 3: Experiment of Psychological Impact of LED Display
15:20 T. Matsui, T. Fukuda, S. Nagamachi
Osaka Univ., Japan
LEM Design Studio, Japan

UXC2/ VHF2 - 4: Effects of Different Comfortable Binocular Disparities on the DP3 Signal—an Event-Related Potential Study Using an Oddball Task
15:40 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: Invited Interaction Techniques on Touchscreens with Elastic/Non-Flat Surfaces
9:00 B. Shizuki
Univ. of Tsukuba, Japan
S. Masunaga, X. Xu, H. Terabe, K. Shibuta, H. Shibata
Fuji Xerox, Japan

UXC3 - 3  9:45  Supporting Reading Itself: An Exploration of Temporal Ink Pen for Making Annotations
X. Xu, H. Shibata
Fuji Xerox, Japan

UXC3 - 4  10:05  Implementation and Evaluation of a Design Support System Using Pen Device for Animation
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  10:30  Investigation of Effect of Bioluminescent Light on Human Using Electroencephalogram
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
13:00
Development of a Novel Azobenzene Diamine Compound for Photoalignment Film with High Transmittance
Y. Tsukada, Y. Ooki, Y. Oguchi, D. Touma
JNC Petrochem., Japan

LCT1 - 2
13:20
Chromaticity Improvement of Novel Photoalignment Material for IPS-LCDs
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
13:40
High Anchoring Composite Photoalignment Material with High Photosensitivity
I. Rushnova, A. Murauski*, V. Mikulich*, A. Muravsky*
Belarusian State Univ., Belarus
*NAS of Belarus, Belarus

LCT1 - 4
14:00
Photo-Aligned Quantum Rods Enhancement Films for LCDs
Hong Kong Univ. of S&T, Hong Kong
*City Univ. of Hong Kong, Hong Kong

----- Break -----
### LCT2 - 2
**15:00**
Optical Surface Profilometry with Dynamic Fringe Pattern Generator Using Multi-Domain LC Phase Array

*H. Park, K.-I. Joo, M. Kim, M.-K. Park, J. Hahn, H.-R. Kim*

*Kyungpook Nat. Univ., Korea*

### LCT2 - 3
**15:20**
Reflection Wavefront Design with Cholesteric LCs

*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/FLX1 - 1:**  
**16:20**  
Invited: Roll Plastic TFT-LCD with 20R Curvature Using Soft Backlight Unit  
*AU Optronics, Taiwan*

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

**LCT3/FLX1 - 3:**  
**17:10**  
Flexible LC Light Shutter with Polymer Wall Structure  
*Pusan Nat. Univ., Korea*

**Author Interviews**  
**17:40 – 18:20**
LCTp1 - 1  New Method for Fast Judgment and Analysis of LCD Reddish
XiaMen Tianma Microelect., China

LCTp1 - 2  Analysis of Gamma Variation in High ppi Mobile Display
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
*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
*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. Changhua 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 -----
<table>
<thead>
<tr>
<th>LCTp3 - 1</th>
<th>Analysis of the Relationship between Pixel Electrode Design and LC Alignment in VA-LCD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M. Li, L. Chen, H. H. Chen</td>
</tr>
<tr>
<td></td>
<td>Shenzhen China Star Optoelect. Tech., China</td>
</tr>
<tr>
<td>LCTp3 - 2</td>
<td>Research of Optimize LCD Quality in ADS Mode</td>
</tr>
<tr>
<td></td>
<td>L. H. Zhang, Y. Y. Qu, B. H. Zhao, D. Wang, S. Liu</td>
</tr>
<tr>
<td></td>
<td>Beijing BOE Display Tech., China</td>
</tr>
<tr>
<td>LCTp3 - 3</td>
<td>Novel Photo-Polymer Stabilization of Nano-Phase-Separated LCs with Fast Response</td>
</tr>
<tr>
<td></td>
<td>DIC, Japan</td>
</tr>
<tr>
<td>LCTp3 - 4</td>
<td>Improvement of the Off-Axis Gamma Distortion in 8-Domain Patterned Vertical Alignment Mode</td>
</tr>
<tr>
<td></td>
<td>Kyungpook Nat. Univ., Korea</td>
</tr>
<tr>
<td>LCTp3 - 5</td>
<td>Effects of Hollow Silica Nanoparticles on Ionic Properties of the LC Cells</td>
</tr>
<tr>
<td></td>
<td>M.-K. Huang, C.-Y. Huang, K.-Y. Lo*, H.-P. Lin*</td>
</tr>
<tr>
<td></td>
<td>Nat. Changhua Univ. of Education, Taiwan</td>
</tr>
<tr>
<td></td>
<td>Nat. Cheng Kung Univ., Taiwan</td>
</tr>
<tr>
<td>LCTp3 - 6</td>
<td>Color Filter/Polarizer-Free LC Composite Display Having Color Dyes</td>
</tr>
<tr>
<td></td>
<td>G. H. Kim, W. J. Lee, S. Kim, Y. H. Kim</td>
</tr>
<tr>
<td></td>
<td>ETRI, Korea</td>
</tr>
<tr>
<td>LCTp3 - 7</td>
<td>Stable Reverse TN-LCDs Using High Pretilt Angle Alignment Layers</td>
</tr>
<tr>
<td></td>
<td>K. Takatoh, H. Uno, H. Taniguchi, I. Watanabe</td>
</tr>
<tr>
<td></td>
<td>Tokyo Univ. of Sci., Yamaguchi, Japan</td>
</tr>
<tr>
<td>LCTp3 - 8</td>
<td>Viewing Angle Controllable LCDs with Hybrid Aligned Nematic LC</td>
</tr>
<tr>
<td></td>
<td>L. Jiang, Z. Su, C. Yu, P. Liao, S. Chung</td>
</tr>
<tr>
<td></td>
<td>InfoVision Optoelect., China</td>
</tr>
</tbody>
</table>
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 -----
Development of Cu BCE-Structure IGZO TFT for High ppi 32-in. 8K4K LCD Display
Shenzhen China Star Optoelect. Tech., China

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
LCT5: Novel LC Applications
Chair: M. Ozaki, Osaka Univ., Japan
Co-Chair: H. Okada, Univ. of Toyama, Japan

LCT5 - 1: Invited Power Generating LCD for Advanced Energy-Harvesting Applications
9:00
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
Pusan Nat. Univ., Korea

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

----- Break -----
10:40 - 12:00

**LCT6: Quality of LCDs**

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

**LCT6 - 1**  
**10:40 Method to Evaluate and Improve Photodegradation 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**  
**11:00 On the Black Level Luminance for Oblique Viewing Angle Due to Diffractions in LCDs**  
A. Yuuki, T. Tsuchiya, K. Yonemura, Y. Niwano  
*Mitsubishi Elec., Japan*

**LCT6 - 3**  
**11:20 Method for Eliminating Color Filter Related Mura of Near-Eye Display**  
B. Zheng, Y. Lin, Y. Yang, L. Wu, P. Shen, C. Tseng  
*XiaMen Tianma Microelect., China*

**LCT6 - 4**  
**11:40 Correlation Analysis of Flicker Shift Phenomenon 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 -----
LCT7 - 2 13:55  Fast In-Plane Switching of LC Aided by Two Dimensional Confinement with Virtual Walls
   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

**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

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
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/Al_2O_3 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
ETRI, Korea
*KAIST, Korea

----- Break -----
AMD3 - 3 17:10 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

Chunghwa Picture Tubes, Taiwan

AMD3 - 4 17:30 19.5-in. 4K LCD Fabricated with Novel LTPS Technology at Gen10 Line

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

Shenzhen China Star Optoelect. Tech., China

AMDp1 - 2 Bias and Temperature Reliability of Amorphous Indium Tin Zinc Oxide Thin Film Transistor on SiO₂, SiNx 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
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
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
Nat. Chaghnua Univ. of Education, Taiwan
AMDp2 - 1 Organic Thin-Film Transistors Integrated Gate Driver Circuits for Low Power Consumption in Panel Application
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
*BOE Tech. Group, China
**Chongqing BOE Optoelect., China

AMDp2 - 3 Amorphous Silicon 2-in. High Resolution Smart Watch with GIP
Chungwha 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
*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 -----
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 - 10:10 409

AMD5: Organic TFTs

Chair: H. Klaauk, 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 -----
AMD6: Flexible Devices

10:40 - 11:30

AMD6 - 1: Invited
Flexible TFT and Devices Manufacturing
10:40
Using Advanced Printed Electronics Technology
*AIST, Japan
**JAPERA, 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 -----
AMD7 - 3  
14:15  
5.8-in. Ultra-Narrow Border LCD with Soluble Metal-Oxide TFTs and Integrated with GIP Circuit  
Chunghwa Picture Tubes, Taiwan  
*Evonik Resource Efficiency, Germany  

----- Break -----  

15:10 - 16:35  
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:  
15:10  
Invited Transparent and Flexible Memory Thin-Film Transistors Using Oxide Semiconductors  
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  
*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  
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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:20</td>
<td>FMC1 - 2</td>
<td>Control of Three Dimensional Birefringence of Uniaxial Oriented Film by Using Smectite Nanoparticle</td>
<td>K. Takatoh, M. Kobayashi, K. Yonehara, T. Abo* (Tokyo Univ. of Sci., Yamaguchi, Japan) and Kaneka, Japan</td>
</tr>
<tr>
<td>13:40</td>
<td>FMC1 - 3</td>
<td>Improvement of Display Unevenness of Device by Reduction of Shrinkage of Polarizing Film</td>
<td>M. Kato, S. Murayama, K. Ikeshima, Y. Nakano (Nitto Denko, Japan)</td>
</tr>
</tbody>
</table>

----- Break -----
FMC2 - 2  15:00  Preventing Surface Reflected Light on Retro-Reflector in AIRR
R. Kujime*,**, H. Yamamoto**
*Tokushima Univ., Japan
**Utsunomiya Univ., Japan

FMC2 - 3  15:20  Development of Wide Viewing VA-LCD System by Utilizing Microstructure Film
S. Ochi, Y. Asaoka, T. Nango, Y. Tsuda
Sharp, Japan

FMC2 - 4  15:40  Invited Mechanism of Optical Vortex Generation from Self-Assembled TFCD Array in Smectic LC and TFCD Application to Optical Devices
K. Käläntäär
Global Optical Solutions, Japan

--- Break ---

16:20 - 17:40  FMC3: Manufacturing Technologies  413

Chair: T. Tomono, Toppan Printing, Japan
Co-Chair: K. Kurokawa, Nihon Entegris, Japan

FMC3 - 1  16:20  Sixth Generation Half Size Linear Source for AMOLED Mass Production
S. M. Kim, D. J. Ji, H. Seo, E. S. Jung, Y. H. Na
YAS, Korea

FMC3 - 2  16:40  Integrated System of LCD Factory Service Automation
W.-C. Chiu, C.-W. Wu, Y.-C. Chu, C.-L. Lin
Nat. Cheng Kung Univ., Taiwan

FMC3 - 3  17:00  New Formation of Multi-Layered n+ Silicon Films for Image Sticking Improvement in 55-in. HVA TV Product
X. Lyu, Y. Meng, S.-J. Chen, X. Liu, C. Liao
Shenzhen China Star Optoelect. Tech., China

FMC3 - 4  17:20  Improvement on Two-Wet and Two-Dry Method in Four Mask Process of G8.5 LCDs
Shenzhen China Star Optoelect. Tech., China

Author Interviews
17:40 – 18:20
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)
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 -----
13:30 - 14:50  

**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**  
13:50  
Thin Film Organic Photodiodes on CMOS Materials Structured via Orthogonal Photolithography for Sensor Applications  
M. Jahnel, M. Schober, K. Fehse, O. R. Hild, U. Vogel  
Fraunhofer Inst., Germany

**FMC6 - 3**  
14:10  
Investigation of Copper Metallization with New Titanium Barrier Layer  
J. H. Seo*,**, B. O. Kim*, J. H. Kim*  
*Korea Aerospace Univ., Korea  
**Cuprum Tech., Korea

**FMC6 - 4**  
14:30  
(100) Textured LTPS Film by Single Scanning CW Laser Lateral Crystallization and Effect of Crystallization Conditions on Grain-Boundaries  
N. Sasaki, Y. Nieda*, D. Hishtani*, 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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
</tr>
</thead>
</table>
| 16:20  | PH1: Phosphors for Lighting Application | Highly Efficient Laser Spotlight Illuminator with a Novel Check-Patterned Phosphor Structure  
K. Morimoto, Y. Nagasaki, K. Okuyama, T. Miwa, A. Takamori, T. Tanaka  
Panasonic AIS, Japan  
*IDEC, Japan  
**Osaka Univ., Japan |
| 16:50  | PH1 - 2                                 | Improvement of Photodegradation of Nitridosilicate Phosphors by Composition Change and Realization of High CRI White-LEDs  
M. Kanno, M. Abe, T. Kusunoki  
Dexerials, Japan |
| 17:10  | PH1 - 3                                 | Commercialized, Narrow Band, Red Emitting Phosphors for Wide Color Gamut Display Applications and LED Lighting  
GE Global Res., USA  
*GE Global Res., India  
**GE Lighting, USA |

**Author Interviews**  
17:40 – 18:20

**Thursday, December 8**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
</tr>
</thead>
</table>
| 14:10  | Poster PHp1: Phosphors for Lighting Application | 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 |

---

**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**  
16:20  
Highly Efficient Laser Spotlight Illuminator with a Novel Check-Patterned Phosphor Structure  
K. Morimoto, Y. Nagasaki, K. Okuyama, T. Miwa, A. Takamori, T. Tanaka  
Panasonic AIS, Japan  
*IDEC, Japan  
**Osaka Univ., Japan

**PH1 - 2**  
16:50  
Improvement of Photodegradation of Nitridosilicate Phosphors by Composition Change and Realization of High CRI White-LEDs  
M. Kanno, M. Abe, T. Kusunoki  
Dexerials, Japan

**PH1 - 3**  
17:10  
Commercialized, Narrow Band, Red Emitting Phosphors for Wide Color Gamut Display Applications and LED Lighting  
GE Global Res., USA  
*GE Global Res., India  
**GE Lighting, USA

**Author Interviews**  
17:40 – 18:20
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 Eu$^{2+}$-Doped BaGa$_2$SiS$_6$ and Ba$_2$Ga$_8$SiS$_{16}$ Thigallate 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

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)
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 -----
### Workshop on OLED Displays and Related Technologies

**Wednesday, December 7**

<table>
<thead>
<tr>
<th>Time</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00 - 14:20</td>
<td><strong>OLED1: OLED Displays</strong></td>
</tr>
<tr>
<td></td>
<td>Chair: T. Ikuta, JNC Petrochem., Japan</td>
</tr>
<tr>
<td></td>
<td>Co-Chair: T. Wakimoto, Merck, Japan</td>
</tr>
<tr>
<td></td>
<td><strong>OLED1 - 1: Invited</strong> Bi-directional Foldable AMOLED Display with</td>
</tr>
<tr>
<td>13:00</td>
<td>Millions Repeat Folding Cycles</td>
</tr>
<tr>
<td></td>
<td>M.-T. Lee, C.-L. Wang, C.-S. Chan, C.-C. Fu, W.-J. Su, Z.-X. Weng, Y.-H. Lin</td>
</tr>
<tr>
<td></td>
<td>AU Optronics, Taiwan</td>
</tr>
<tr>
<td></td>
<td><strong>OLED1 - 2</strong> Introduction of New Transparent Conductive Oxide Film for Anode of OLED</td>
</tr>
<tr>
<td></td>
<td>Mitsubishi Materials, Japan</td>
</tr>
<tr>
<td></td>
<td><strong>OLED1 - 3</strong> Data-Counting Model for Empirical Prediction of OLED Degradation</td>
</tr>
<tr>
<td>13:40</td>
<td>X. Jiang, C. Xu</td>
</tr>
<tr>
<td></td>
<td>Saarland Univ., Germany</td>
</tr>
<tr>
<td></td>
<td><strong>OLED1 - 4</strong> Highly Performant and Stable Thin-Film Encapsulated Inverted Organic Top-Light Emitting Diodes Based on MoOx as Electron Injection Layer</td>
</tr>
<tr>
<td>14:00</td>
<td>Y. Murat*, G. Wantz*, J.-Y. Laurent**, T. Maindron**, L. Hirsch*</td>
</tr>
<tr>
<td></td>
<td>*Univ. of Bordeaux, France</td>
</tr>
<tr>
<td></td>
<td>**Univ. Grenoble-Alpes CEA, France</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:40 - 16:00</td>
<td><strong>OLED2: OLED for Lighting Applications</strong></td>
</tr>
<tr>
<td></td>
<td><em>Special Topics of Interest on Lighting and Quantum Dot Technologies</em></td>
</tr>
<tr>
<td></td>
<td>Chair: Y. Kijima, Huawei Techs., Japan</td>
</tr>
<tr>
<td></td>
<td>Co-Chair: S. Naka, Univ. of Toyama, Japan</td>
</tr>
<tr>
<td></td>
<td><strong>OLED2 - 1: Invited</strong> Recent Advances in White OLED Technologies for OLED TV and Lighting</td>
</tr>
<tr>
<td>14:40</td>
<td>C.-W. Han, H.-S. Choi, S.-S. Jang, M.-S. Kang, S.-S. Park, H.-C. Choi, B.-C. Ahn, I.-B. Kang</td>
</tr>
<tr>
<td></td>
<td>LG Display, Korea</td>
</tr>
</tbody>
</table>
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

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
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


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


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


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


Hanyang Univ., Korea
OLEDp1 - 3 Study of Efficiency Enhancement in OLED with Microcavity Effect
ITRI, Taiwan

OLEDp1 - 4 Hybrid White OLEDs with Color Stability Utilizing Blue Emission Supporting Layer
*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 Rb$_2$CO$_3$ 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 BlmBP Host
Yuan Ze Univ., Taiwan
* Nat. Taiwan Univ., Taiwan
**ITRI, Taiwan

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 Overlayer and Their Applications
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
*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
Thursday December 8

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
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
H. Kaji
Kyoto Univ., Japan

**OLED5 - 3** High Efficiency and Long Lifetime Fluorescent Blue Devices
H.-L. Huang, P.-W. Hsu, C.-J. Lin
eRay Optoelect.Tech., Taiwan
OLED5 - 4
17:50
Highly Efficient and Low Efficiency Roll-Off Green 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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Main Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00 - 13:10</td>
<td><strong>Opening</strong></td>
</tr>
<tr>
<td>13:10 - 14:30</td>
<td><strong>3DSA1/3D1: Holography</strong></td>
</tr>
</tbody>
</table>

## Opening Remarks

13:00

*N. Inoue, Program Chair, 3DSA*

*M. Tsuchida, 3D-WS Chair, IDW*

<table>
<thead>
<tr>
<th>Time</th>
<th>Main Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:10 - 14:30</td>
<td><strong>3DSA1/3D1: Holography</strong></td>
</tr>
</tbody>
</table>

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

13:10

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

**ETRI, Korea**

### 3DSA1/3D1 - 2: Projection-Type Holographic Three-Dimensional Display

13:30

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

**NICT, Japan**

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

13:50

*Y. Matsumoto, Y. Takaki*

**Tokyo Univ. of A&T, Japan**

### 3DSA1/3D1 - 4: Development of Run-Length-Based Fourier Transform

14:10

*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 -----
Time-Multiplexing Multi-View Three-Dimensional Display Using Virtually Moving Microlens Array

Kyungpook Nat. Univ., Korea
ETRI, Korea

Design of Portable LF Display for High-Quality 3D View Generation

ETRI, Korea
Samsung Display, Korea

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

Does Eye Strain Decrease after Observing 3D Imaging on the Light Field Display?

M. Shoda, T. Iwane, R. Niimi*
NIKON, Japan
Niigata Univ., Japan

Developing a Photometric Device for Generating Quality Texture and Normal Map

Y.-C. Chen, T.-H. Lin
Nat. Taiwan Univ. of S&T, Taiwan

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

CNN-Based Pedestrian and Vehicle Detection Using Stereo Camera

G.-C. Lee, J. Yoo
Kwangwoon Univ., Korea
GPU Acceleration of Hologram Generation Based on Ray-Sampling Plane
Chiba Univ., Japan
*NICT, Japan

Mobile-Type Color Binocular Holographic Display System
K.-J. Oh, M. S. Yoon, H.-G. Choo, J. Kim
ETRI, Korea

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

Holographic Device for Generating Collimated Beam by Using a LED
*Nat. Changhua Univ. of Education, Taiwan
**Nat. Chiao Tung Univ., Taiwan

Study on Compact Holographic Head-Mounted Display for Augmented Reality
E. Murakami, Y. Oguro, Y. Sakamoto
Hokkaido Univ., Japan

Mixed Display Method for Real Objects and CG Texts in Electronic Holography
NICT, Japan

Improvement of Color Reproducibility of Full-Color 3D Display Using Binary Phase Distribution
S. Harada, K. Nitta, O. Matoba
Kobe Univ., Japan

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

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

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
*****Tohoku Univ. of Tech., Japan
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 14:10 - 16:40 | Multipurpose Hall

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

3DAp2/3Dp2 - 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
*N. Astronomical Observatory of Japan, Japan*

3DAp2/3Dp2 - 2: Viewing Zone Expansion by Blurring Edge Parts in Edge-Based DFD Display

*T. Yamamoto, H. Mizushima, S. Suyama*

Tokushima Univ., Japan

3DAp2/3Dp2 - 3: Depth Perception Difference by Only Two Light Sources with Various Distances in Non-Overlapped DFD Display

*R. Takano, H. Mizushima, S. Suyama*

Tokushima Univ., Japan

3DAp2/3Dp2 - 4: Large and Deep Edge-Based DFD Display by Blurring Edge Parts

*Y. Nagao, H. Mizushima, S. Suyama*

Tokushima Univ., Japan

3DAp2/3Dp2 - 5: Resolution Enhanced 3D Light Field Microscope with Liquid Crystal Wedge

*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
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

Digital Cosmetic Coloring System for 3D Facial Images
Nat. Taiwan Univ. of S&T, Taiwan

New Method for Luminance Addition/Subtraction System by Using Polarization Operation in Layered TN-LCDs
Z. Fan, H. Mizushima, S. Suyama
Tokushima Univ., Japan

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
NLT Techs., Japan

LCD Panel Design for HMD Based on Retinal Projection Display
*Nat. Changhua Univ. of Education, Taiwan **Nat. Chiao Tung Univ., Taiwan

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

Layered Multi-View DFD Display for Improving Perceived Depth and Image Shift Smoothness even at Small Number of Multi-View
T. Eguchi, H. Mizushina, S. Suyama
Tokushima Univ., Japan

Perception of Many Transparent Layered Images in the Depth-Fused 3D Display
K. Sakamaki, H. Mizushina, S. Suyama
Tokushima Univ., Japan

----- Break -----
### 3D4/3DSA5: Image Processing

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:50</td>
<td>3DSA5 - 1</td>
<td>Face Tracking Method Using Depth Information</td>
<td>J.-H. Lee, J. Yoo Kwangwoon Univ., Korea</td>
</tr>
<tr>
<td>17:10</td>
<td>3DSA5 - 2</td>
<td>3D Interactive System Based on Neural Network Training of Dual Cameras</td>
<td>T.-Y. Lu, X. Li, C.-H. Chen, Y.-P. Huang Nat. Chiao Tung Univ., Taiwan</td>
</tr>
<tr>
<td>17:30</td>
<td>3DSA5 - 3</td>
<td>Synthesis of Top View Image and Detection of Obstacles Using Multiple Cameras for Monitoring Around a Truck</td>
<td>K. Uehara, H. Saito, K. Yamamoto*, H. Sato† Keio Univ., Japan †Mitsubishi Fuso Truck &amp; Bus, Japan</td>
</tr>
<tr>
<td>17:50</td>
<td>3DSA5 - 4</td>
<td>Study on Band-Efficient System Design and Video Coding for Fixed &amp; Mobile Hybrid UHD 3DTV System Using Scalable HEVC</td>
<td>S.-H. Kim, K. H. Yong, K.-H. Jung* ETRI, Korea †Kookmin Univ., Korea</td>
</tr>
</tbody>
</table>

**Author Interviews**  
18:10 – 18:50

---

### Friday, December 9

**9:00 - 10:20 Main Hall**  
**3DSA6/3D5: Volume Display and Display Analysis**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Invited</td>
<td>TSTF Up-Conversion Crystal as an Image</td>
<td>J.-Y. Son, H. Lee, C.-K. Sung, B.-R. Lee*, H. Choo† Konyang Univ., Korea †ETRI, Korea</td>
</tr>
<tr>
<td></td>
<td>3D5 - 1:</td>
<td>Space of Electro-Holography</td>
<td></td>
</tr>
</tbody>
</table>

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

### 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*

### Period of Color Moiré Fringes in Contact-Type 3D Displays

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

----- Break -----**

#### 3D6/3DSA7: Aerial Display

**Chair:** J.-Y. Son, Konyang Univ., Korea  
**Co-Chair:** H. Mizushina, 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*  
*NPION, 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 -----
Friday December 9

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: Invited Displaying Real World Light Fields Using Stacked LCDs
15:10 K. Takahashi, Y. Kobayashi, T. Fujii
Nagoya Univ., Japan

15:35 K. Yasutomi, S. Kawahito
Shizuoka Univ., Japan
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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00 - 13:05</td>
<td><strong>Opening</strong></td>
</tr>
<tr>
<td>13:05 - 14:05</td>
<td><strong>VHF1: Ergonomics for Automotive Applications</strong></td>
</tr>
</tbody>
</table>

**Chair:** Y. Shimodaira, Shizuoka Univ., Japan  
**Co-Chair:** K. Sakamoto, Panasonic, Japan

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 13:05  | Influence of Image Position and Visual Target on Depth Perception When Using Automotive 3D Head-Up Display  
**R. Noguchi, T. Daimon, T. Mori**, K. Kasazumi  
*Keio Univ., Japan  
**Panasonic, Japan** |
| 13:25  | Traffic Signal with PWM Coding for Visible Light Communication  
*Hsiuping Univ. of S&T, Taiwan  
**Washington High School, Taiwan** |
| 13:45  | Key Perceptual Factors for Smart Garnish Light/Display  
*Korea Inst. of Lighting & Tech., Korea  
**Seoyon Elect., Korea  
**Dilussion, Korea** |

----- Break -----
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:40</td>
<td>Invited</td>
<td>Development of Japanese Electronic Text Readers Based on Perceptual</td>
<td>J. Kobayashi*, E. Shinbori*, T. Kawashima**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mechanisms of Reading</td>
<td>*Dai Nippon Printing, Japan **Future Univ. Hakodate, Japan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*XiaMen Tianma Microelect., China</td>
</tr>
<tr>
<td>15:20</td>
<td>An Experiment</td>
<td>Psychological Impact of LED Display</td>
<td>T. Matsui, T. Fukuda, S. Nagamachi*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Osaka Univ., Japan **LEM Design Studio, Japan</td>
</tr>
<tr>
<td>15:40</td>
<td>Effects</td>
<td>Different Comfortable Binocular Disparities on the DP3 Signal-an</td>
<td>P. Ye, X. Wu, D. Gao, S. Deng, N. Xu, J. She, J. Chen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event-Related Potential Study Using an Oddball Task</td>
<td>*Sun Yat-Sen Univ., China</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:20</td>
<td>Mura Image</td>
<td>Quality Evaluation Based on Fourier Spectrum Analysis</td>
<td>K. Ishiguro, T. Asano, W. Liu*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Hiroshima Inst. of Tech., Japan **Fast, Japan</td>
</tr>
<tr>
<td>16:40</td>
<td>Optical</td>
<td>Properties of a Transparent LCD</td>
<td>P. Boher, T. Leroux, T. Bignon, V. Collomb-Patton</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*ELDIM, France</td>
</tr>
<tr>
<td>Time</td>
<td>Session Details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td>Preferred Background Lighting and Tone Reproduction Curves of See-Through Displays</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H.-P. Chien, P.-L. Sun</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nat. Taiwan Univ. of S&amp;T, Taiwan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:20</td>
<td>1-D Simulation on Sparkle Perception</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X. Zhong, Y. Yang, J. Liu, Y. Yang, H. Cui, D. Lee, P-H Lung</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wuhan China Star Optoelect. Tech., China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:40 – 18:20</td>
<td><strong>Author Interviews</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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

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

- **Invited** Human Vision Response in AR & VR  
  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

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

- Subjective Experiment Study on Binocular Overlap Effect of Different Colors for the Augmented Reality Near-Eye Display  
  10:00  
  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  
Hsiuping Univ. of S&T, Taiwan  
*Chung Shan Medical Univ., Taiwan

**Friday, December 9**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 10:10</td>
<td><strong>VHF5: Human Factors and Applications</strong></td>
<td><strong>VHF5 - 1:</strong> Invited Visual Effects of Concave Curved Displays in Large and Wide-Angle Environment: Immersion and Aftereffect</td>
<td>S. Ohtsuka, Kagoshima Univ., Japan</td>
</tr>
<tr>
<td>9:30</td>
<td><strong>VHF5 - 2</strong></td>
<td>Image Quality Evaluation Method for Online Camera Module Inspection Based on Human Vision</td>
<td>P.-J. Weng, Q. Zong, W.-C. Chao, Y.-P. Huang, H.-P. D. Shieh, Nat. Chiao Tung Univ., Taiwan</td>
</tr>
<tr>
<td>9:50</td>
<td><strong>VHF5 - 3</strong></td>
<td>Novel Optical Compensation Algorithm for AMOLED Mura Cancellation</td>
<td>Y. Deng, Y. Jin, S. Syu, M. Jou, Shenzhen China Star Optoelect. Tech., China</td>
</tr>
<tr>
<td>10:40 - 11:50</td>
<td><strong>VHF6: Visual Comfort and Motion Sickness</strong></td>
<td><strong>VHF6 - 1:</strong> Invited What Kind of Motion Is the Primary Cause of Visually Induced Motion Sickness?</td>
<td>H. Ujike, H. Watanabe, AIST, Japan</td>
</tr>
</tbody>
</table>
*Ewha Color Design Inst., Korea  
**Ewha Womans Univ., Korea  
***Samsung Display, Korea |
VHF6 - 3  
11:30  
The Reduction of Harmful Blue Light Radiation of LCD for Prevention of Photo-Damage to Human Eyes  
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 -----
Workshop on Projection and Large-Area Displays and Their Components

Thursday, December 8

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 9:05</td>
<td>Opening</td>
</tr>
<tr>
<td>9:05 - 10:25</td>
<td>PRJ1: Standardization and Characterization</td>
</tr>
</tbody>
</table>

**Opening Remarks**

9:00

*S. Ouchi, Hitachi, Japan*

**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


*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


*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 -----
Optical Design of Wide Viewing Eyeglass-Type Wearable Device Using Multiple Reflection Element

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

Optimization and Verification of Viewing Angle for Wearable Display Device for Outdoor Use

J. Iwai, H. Kimura
Telepathy Japan, Japan

Common Platform for Maintenance System with Wearable Device

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

----- Break -----
13:30 - 14:50

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:
13:30

Invited Projection Mapping Technologies for AR

D. Iwai
Osaka Univ., Japan

PRJ4/DES3 - 2:
13:50

Invited Animating Static Objects by Illusion-Based Projection Mapping

S. Nishida, T. Kawabe, T. Fukiage, M. Sawayaama
NTT, Japan

PRJ4/DES3 - 3:
14:10

Invited 3D Billboards without Glasses

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
14:30

Smart Contact Lens Platform with a Deformed Active Artificial Iris

A. V. Quintero*, R. Verplancke**, J. Vanfleteren***
H. De Smet***
*Ghent Univ., Belgium
**imec, Belgium

----- Break -----

15:10 - 16:30

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:
15:10

Invited Adaptive High Resolution Headlight Using Texas Instruments DLP Technology

V. R. Bhakta, B. Ballard
Texas Instrs., USA

PRJ5 - 2
15:30

Study on Improvement of Conspicuity at Night with Lighting for Drawing on a Road Surface

Y. Tsuchiya, R. Kawaji, S. Iwamoto
Honda R&D, Japan
Integrated RGB Laser Light Module for Augmented and Virtual Reality Applications
TriLite Techs., Austria
Tech. Univ. Wien, Austria

Development of Head-Up Display for Railway Vehicle
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/
Opening Remarks
14:40

K. Hashimoto, E Ink Japan, Japan

EP1: Color e-Paper Technologies
14:45 - 15:55

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
15:10

Novel Organic Electrochromic Device toward Multi-Color Representation

M. Yukikawa, K. Nakamura, N. Kobayashi
Chiba Univ., Japan

EP1 - 3: Invited Three-Particle Electrophoretic Display
15:30

E Ink California, USA

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

----- Break -----
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. Degirmencioğlu, 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

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 -----
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 – 11:10</td>
<td>Author Interviews</td>
</tr>
<tr>
<td>11:15 – 11:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>14:10 – 16:40</td>
<td>Multipurpose Hall</td>
</tr>
<tr>
<td></td>
<td><strong>Poster MEETp1: Quantum Dots and Nanotechnologies</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Special Topics of Interest on Lighting and Quantum Dot Technologies</strong></td>
</tr>
<tr>
<td>MEETp1 - 1</td>
<td>CsPbBr$_3$ Based Perovskite Nanocrystals for Light-Emitting Diodes</td>
</tr>
<tr>
<td></td>
<td>S.-Y. Cho, H.-M. Kim, J. Jang</td>
</tr>
<tr>
<td></td>
<td>Kyung Hee Univ., Korea</td>
</tr>
<tr>
<td>MEETp1 - 2</td>
<td>All Solution Processed Charge Generation Junction for Quantum-Dot Light Emitting Diodes</td>
</tr>
<tr>
<td></td>
<td>E. Hwang, H.-M. Kim, J. Kim, J. Jang</td>
</tr>
<tr>
<td></td>
<td>Kyung Hee Univ., Korea</td>
</tr>
<tr>
<td>14:10 – 16:40</td>
<td>Multipurpose Hall</td>
</tr>
<tr>
<td></td>
<td><strong>Poster MEETp2: Novel Materials and Components</strong></td>
</tr>
<tr>
<td>MEETp2 - 1</td>
<td>Fabrication of Nano-Gap in Thin Metal (Ag, Au, Cu) Film Using Water-Soluble Inorganic Film for Surface-Enhanced Raman Spectroscopy</td>
</tr>
<tr>
<td></td>
<td>K. Min, W. J. Jeon, H. K. Yu</td>
</tr>
<tr>
<td></td>
<td>Ajou Univ., Korea</td>
</tr>
<tr>
<td>MEETp2 - 2</td>
<td>Doping Effect on Performance of Solution-Processed Metal Oxide P-N Heterojunction Diodes</td>
</tr>
<tr>
<td></td>
<td>J. Shin, J. Kim, H.-M. Kim, J. Jang</td>
</tr>
<tr>
<td></td>
<td>Kyung Hee Univ., Korea</td>
</tr>
<tr>
<td>MEETp2 - 3</td>
<td>Application of Projector Display Technology for Inspection of Hydrogen Production Rate with Designed TiO$_2$ Electrodes</td>
</tr>
<tr>
<td></td>
<td>C.-J. Ou, R.-Y. Lan, C.-R. Ho, C.-J. Huang</td>
</tr>
<tr>
<td></td>
<td>Hsiuping Univ. of S&amp;T, Taiwan</td>
</tr>
<tr>
<td>MEETp2 - 4</td>
<td>Update Review on the Application of Information Display Technology for Optogenetics and Cell Illuminating Device</td>
</tr>
<tr>
<td></td>
<td>C.-J. Ou, M. Y. Cheng, C.-R. Ho</td>
</tr>
<tr>
<td></td>
<td>Hsiuping Univ. of S&amp;T, Taiwan</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>9:00</td>
<td>MEET2: Novel Materials</td>
</tr>
<tr>
<td></td>
<td>and Components</td>
</tr>
<tr>
<td></td>
<td>and Components</td>
</tr>
<tr>
<td>9:40</td>
<td>MEET2: Novel Materials</td>
</tr>
<tr>
<td></td>
<td>and Components</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>MEET2: Novel Materials</td>
</tr>
<tr>
<td></td>
<td>and Components</td>
</tr>
<tr>
<td></td>
<td>Components and Process</td>
</tr>
<tr>
<td></td>
<td>Technologies</td>
</tr>
</tbody>
</table>
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 -----
MEET4 - 4: Invited  Quantum Dot Electroluminescence  
14:30  
P. Kathirgamanathan, M. Kumaraverl, N.Bramananthan,  
S. Ravichandran, L. M. Bushby, S. Surendrakumar  
Brunel Univ. London, UK

----- Break -----

15:10 - 16:30  
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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Venue</th>
<th>Poster DESp1: Display Electronic Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:10 - 16:40</td>
<td>Multipurpose Hall</td>
<td>Development of 98-in. 8K HDR LCD Display and the Related Technologies &lt;br&gt;<strong>C. Jung, Y. Bi, G. Sun, S. Zhou, Q. Yang, S. Li, L. Zhang, J. Jun, X. Dong</strong> &lt;br&gt;BOE Tech. Group, China</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65-in. 8K4K Curved LCD &lt;br&gt;<strong>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</strong> &lt;br&gt;Shenzhen China Star Optoelect. Tech., China</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Novel a-Si:H Gate Driver Circuit for In-Cell Touch TFT-LCDs &lt;br&gt;<strong>W.-L. Wu, P.-C. Lai, M.-H. Cheng, C.-L. Lin</strong> &lt;br&gt;Nat. Cheng Kung Univ., Taiwan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peak Luminance Increase Method in RGBW AMOLED Display &lt;br&gt;<strong>Z. Y. Lin, C. M. Hsu</strong> &lt;br&gt;AU Optronics, Taiwan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Most Power Saving WRGB Algorithm without Saturation Reduction &lt;br&gt;<strong>J. J. Wu, K. Hsiao, W. W. Zheng, J. Fan</strong> &lt;br&gt;Shenzhen China Star Optoelect. Tech., China</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Implant Scan Strategy for Ultra-High Gray Level Flat Panel Display &lt;br&gt;<strong>C. Wang, L. Man, Y. Ji, F. Ran, M. Xu</strong> &lt;br&gt;Shanghai Univ., China</td>
</tr>
</tbody>
</table>
### Thursday, December 8

#### 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*
Three-Dimensional Head-Up Display for Automobiles Using Super Multi-View Display

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

Author Interviews
18:20 – 18:50

Friday, December 9

10:40 - 12:05

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. Stolitzka
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
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 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:**  
**13:30**  
*Invited* Projection Mapping Technologies for AR  
D. Iwai  
Osaka Univ., Japan

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

**PRJ4/DES3 - 3:**  
**14:10**  
*Invited* 3D Billboards without Glasses  
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:**  
**14:30**  
Smart Contact Lens Platform with a Deformed Active Artificial Iris  
*Ghent Univ., Belgium  
**imec, Belgium

----- Break -----
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

Flat Autostereoscopic 3D Display with Enhanced Resolution Using a Wavelength Selective Filter Barrier
S. Jurk, M. Kuhlme, 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: 16:20

**Invited** Roll Plastic TFT-LCD with 20R Curvature Using Soft Backlight Unit

AU Optronics, Taiwan

#### LCT3/FLX1 - 2: 16:45

**Invited** Substrate and Polymer-Wall Technologies for Future Foldable LCD Applications

T. Ishinabe, Y. Obonai, S. Honda, Y. Shibata, H. Fujikake  
Tohoku Univ., Japan

#### LCT3/FLX1 - 3: 17:10

Flexible LC Light Shutter with Polymer Wall Structure

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: 10:30

High Gas Barrier Thin Film Deposition by PECVD on Plastic Substrates Using a Novel and Highly Volatile Precursor, TG-41, for OLED Applications

H. Chiba, K. Iwanaga, K. Tokuhisa  
TOSOH, Japan
FLXp1 - 2  Gas Barrier Touch Sensor for Flexible Top Emission AMOLED Encapsulation
ITRI, Taiwan

FLXp1 - 3  Flexible OLEDs Fabricated on Transparent Chitin Nanofiber Paper
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
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
*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
Taiwan University

FLXp1 - 12 To Improve Flexibility of Flexible LTPS-TFTs by Using Stress Absorbing Structure
ITRI, Taiwan

16:50 - 18:10 412
FMC5/FLX2: Manufacturing and Equipment

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FLX2 - 1</td>
<td></td>
<td>Shinoda Plasma, Japan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shikoh Tech LLC, Japan</td>
</tr>
<tr>
<td>17:10</td>
<td>FMC5/</td>
<td>Fabrication of Thin-Film Coatings on Large Size Ultrathin Glass for Flexible Devices</td>
<td>M. Junghaenel, T. Preussner, J. Westphalen</td>
</tr>
<tr>
<td></td>
<td>FLX2 - 2</td>
<td></td>
<td>Fraunhofer Inst., Germany</td>
</tr>
<tr>
<td>17:30</td>
<td>FMC5/</td>
<td>Cutting Method for Electronic Device Made Using Ultrathin Glass</td>
<td>N. Inayama</td>
</tr>
<tr>
<td></td>
<td>FLX2 - 3</td>
<td></td>
<td>Nippon Elec. Glass, Japan</td>
</tr>
</tbody>
</table>

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

----- Lunch -----
Direct Imaging Exposure Equipment with High Overlay Accuracy for Flexible Substrate in Roll-to-Roll Method
Nikon, Japan

Author Interviews
18:10 – 18:50

Friday, December 9

9:00 - 10:05  FLX3: Flexible Device Technologies 1

<table>
<thead>
<tr>
<th>Chair:</th>
<th>Co-Chair:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Nakata, NHK, Japan</td>
<td>T. Kamata, AIST, Japan</td>
</tr>
</tbody>
</table>

FLX3 - 1: Invited Substrates and Non-ITO Electrodes for Flexible OLEDs
9:00
M. Koden, T. Furukawa, T. Yuki, H. Kobayashi, H. Nakada
Yamagata Univ., Japan

FLX3 - 2: High Performance LTPS-TFT Fabricated on Polyimide Substrate for Advanced Flexible Mobile Applications
9:25
J. Kim, H. Kim, M. Baek, J. Lee, M. Park, C. Kim, Y. Hwang, J. Park
Samsung Display, Korea

FLX3 - 3: All-Printed Non-ITO Transparent Electrodes on Ultra-Thin Glass for OLED Lighting
9:45
T. Furukawa, M. Sakakibara*, N. Kawamura, M. Koden
Yamagata Univ., Japan
*Dai Nippon Printing, Japan

----- Break -----

10:40 - 11:50  FLX4: Flexible Device Technologies 2

<table>
<thead>
<tr>
<th>Chair:</th>
<th>Co-Chair:</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. Eguchi, Sumitomo Bakelite, Japan</td>
<td>Y. Uraoka, NAIST, Japan</td>
</tr>
</tbody>
</table>

FLX4 - 1: Invited Edge Sealing Technologies for Foldable AMOLED Display
10:40
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
11:30
3D Finite Element Analysis of Stress Distribution and Transfer Characteristics of Flexible IGZO TFT under Mechanical Bending
Chunghwa Picture Tubes, Taiwan

Author Interviews
12:00 – 12:40

----- Lunch -----
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: New Alignment Technology for Printed Electronics
15:35 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: Inkjet Printing Equipment for Multiple Layered Electronics Devices on Roll-to-Roll Flexible Substrates
15:55
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  
13:05  
Somatic Interfaces to Interact with Image Displays  
Y. Kume, T. Mizuno*  
Tokyo Polytechnic Univ., Japan  
*Univ. of Electro-Commun., Japan

INP1 - 2: Invited  
13:30  
Retinal Imaging Laser Eyewear with Focus-Free and Augmented Reality  
M. Sugawara, M. Suzuki, H. Miyauchi  
QD Laser, Japan

INP1 - 3: Invited  
13:55  
String-Based Haptic Interface for Mobile Devices  
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
INP2: Automotive HMI
Special Topics of Interest on Automotive Displays

Chair: N. Haneda, DENSO, Japan
Co-Chair: H. Haga, NLT Techs., Japan

INP2 - 1: Invited Communication System Using Lights for Automobile
14:40
N. Haneda
DENSO, Japan

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

16:20 - 17:30
INP3: Touch Panel

Chair: K. Yamazaki, Corning Japan, Japan
Co-Chair: Y. Teranishi, Japan Display, Japan

INP3 - 1: Invited High-Definition In-Cell Touch Panel with Parallel Scanning Method
16:20
Sharp, Japan
**Thursday, December 8**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:10 - 16:40</td>
<td>Multipurpose Hall: Poster INPp1: Interactive Technologies</td>
</tr>
</tbody>
</table>

**INPp1 - 1**  
Single Pixel Imaging with a High-Frame-Rate LED Digital Signage  
*Utsunomiya Univ., Japan  
**JST, Japan  
***Osaka Univ., Japan  
****Tokushima Univ., Japan

**INPp1 - 2**  
Advanced High Integration Touch In-Cell Display Module  
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
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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Main Hall</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00 - 13:10</td>
<td>Opening</td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:10</td>
<td>Invited Digital Holographic Display for 360° Viewable 3D Color Image Rendering and Performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>J. Kim, K. Hong, Y. Lim, J. Kim, H.-G. Choo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ETRI, Korea</td>
</tr>
<tr>
<td>13:30</td>
<td>Projection-Type Holographic Three-Dimensional Display</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K. Wakunami, R. Oi, T. Senoh, Y. Ichihashi, M. Okui</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K. Yamamoto</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NICT, Japan</td>
</tr>
<tr>
<td>13:50</td>
<td>Generation of Color Three-Dimensional Images by Viewing-Zone Scanning Holographic Display</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y. Matsumoto, Y. Takaki</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tokyo Univ. of A&amp;T, Japan</td>
</tr>
<tr>
<td>14:10</td>
<td>Development of Run-Length-Based Fourier Transform</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>T. Akamatsu, T. Shimobaba, T. Kakue, T. Ito</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chiba Univ., Japan</td>
</tr>
</tbody>
</table>

----- 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

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 3D2/3DSA2 - 1 | 14:40 | Invited Progress on Head-Worn Display Technology for Augmented Reality | 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. Hirotá*, 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 -----
3DSA3/3D3 - 3
17:00
Time-Multiplexing Multi-View Three-Dimensional Display Using Virtually Moving Microlens Array
Kyungpook Nat. Univ., Korea
*ETRI, Korea

3DSA3/3D3 - 4
17:20
Design of Portable LF Display for High-Quality 3D View Generation
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
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  
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
*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
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
Grey Relational Analysis of Subjective and Non-Subjective Evaluations during Watching 3D Films
Taiwan Univ. of S&T, Taiwan
*Nat. Chiao Tung Univ., Taiwan
**Nat. Taichung Univ. of S&T, Taiwan

Evaluation of Perceived 3D Structure of Multi-View 3D Medical Image Based on Transparent Visualization: A Psychophysical Study
NICT, Japan
*Ritsumeikan Univ., Japan

Accommodation Measurement in VR Device of Google Cardboard Type
H. Kang, H. Hong
Seoul Nat. Univ. of S&T, Korea

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

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
****Toho Univ. of Tech., Japan

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

Bodily Reliving Experience Based on Multisensory Passive Stimulation
Tokyo Metropolitan Univ., Japan
*Univ. of Electro-Commun., Japan
**Toho Univ. of Tech., Japan
----- Lunch -----
Gradation Expression by Overlap of Voxels in Volumetric Display Composed of Photochromic Materials
Chiba Univ., Japan
Nat. Astronomical Observatory of Japan, Japan

Viewing Zone Expansion by Blurring Edge Parts in Edge-Based DFD Display
T. Yamamoto, H. Mizushima, S. Suyama
Tokushima Univ., Japan

Depth Perception Difference by Only Two Light Sources with Various Distances in Non-Overlapped DFD Display
R. Takano, H. Mizushima, S. Suyama
Tokushima Univ., Japan

Large and Deep Edge-Based DFD Display by Blurring Edge Parts
Y. Nagao, H. Mizushima, S. Suyama
Tokushima Univ., Japan

Resolution Enhanced 3D Light Field Microscope with Liquid Crystal Wedge
Nat. Chiao Tung Univ., Taiwan
*Univ. de València, Spain

Implementation of Artifacts Reduced Multi-View Display with High Quality 3D Images
E. D. Lee, G. Lee, W.-S. Cheong, N. Hur
ETRI, Korea

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

Super Multiview Stereoscopic Display Using Time-Division Multiplexing Parallax Barrier
K. Okada, H. Kakeya
Univ. of Tsukuba, Japan
Thursday

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
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. Mizushina, 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
NLT Techs., Japan

3DSAp2/3Dp2 - 19
LCD Panel Design for HMD Based on Retinal Projection Display
*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. Mizushina, S. Suyama
Tokushima Univ., Japan

3DSAp2/3Dp2 - 22
Perception of Many Transparent Layered Images in the Depth-Fused 3D Display
K. Sakamaki, H. Mizushina, S. Suyama
Tokushima Univ., Japan

----- Break -----
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10</td>
<td>3D4/3DSA5 - 2</td>
<td>3D Interactive System Based on Neural Network Training of Dual Cameras</td>
<td>T.-Y. Lu, X. Li, C.-H. Chen, Y.-P. Huang</td>
</tr>
<tr>
<td>17:30</td>
<td>3D4/3DSA5 - 3</td>
<td>Synthesis of Top View Image and Detection of Obstacles Using Multiple Cameras for Monitoring Around a Truck</td>
<td>K. Uehara, H. Saito, K. Yamamoto*, H. Sato*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Keio Univ., Japan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Mitsubishi Fuso Truck &amp; Bus, Japan</td>
</tr>
<tr>
<td>17:50</td>
<td>3D4/3DSA5 - 4</td>
<td>Study on Band-Efficient System Design and Video Coding for Fixed &amp; Mobile Hybrid UHD 3DTV System Using Scalable HEVC</td>
<td>S.-H. Kim, K. H. Yong, K.-H. Jung*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ETRI, Korea</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Kookmin Univ., Korea</td>
</tr>
</tbody>
</table>

**Author Interviews**
18:10 – 18:50

---

**Friday, December 9**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Konyang Univ., Korea</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*ETRI, Korea</td>
</tr>
</tbody>
</table>

**Chair:** H. Saito, Keio Univ., Japan

**Co-Chair:** K. Takahashi, Nagoya Univ., Japan

**Chair:** T. Fujii, Nagoya Univ., Japan

**Co-Chair:** D. Miyazaki, Osaka City Univ., Japan
### Aerial Projection of Three-Dimensional Color Motion
**Parabolic Mirrors**
*T. Kakue, A. Uemura, T. Nishitsuji, T. Shimobaba, T. Ito*
*Chiba Univ., Japan*

### Viewing Zones Analysis of Convex Multi-View Autostereoscopic 3D Display with Barrier
*Nat. Taiwan Univ., Taiwan*

### Period of Color Moiré Fringes in Contact-Type 3-D Displays
**H. Lee, J. Kim, J.-Y. Son**
*Univ. of Konyang, Korea*

#### Break

### 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*

### 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*

### 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*

### 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
ORGANIZING COMMITTEE
General Chair: M. Kimura  Ryukoku Univ.
General Vice-Chair: H. Fujikake  Tohoku Univ.
Representative (ITE): K. Betsui  Hitachi
T. Sisikui  Meiji Univ.
Representative (SID): P. Drzaic
M. Omodani  Tokai Univ.
Standing (Executive Chair): M. Date  NTT
Standing (Program Chair): R. Hattori  Kyushu Univ.
Standing: Y. limura  Tokyo Univ. of A&T
K. Ishikawa  Tokyo Tech
A. Mikami  Kanazawa Inst. of Tech.
H. Okumura  Toshiba
T. Tsujimura  KONICA MINOLTA
Auditor: K. Azuma  Shimadzu

OVERSEAS ADVISORS
Overseas Advisor: B. H. Berkeley  Highlight Display, USA
J. Chen  The Ind. Tech. Res. Inst., Taiwan
N. Fruehauf  Univ. of Stuttgart, Germany
A. Ghosh  eMagin, USA
M.-K. Han  Seoul Nat. Univ., Korea
J. Jang  Kyung Hee Univ., Korea
Y.-S. Kim  Hongik Univ., Korea
H.-S. Kwok  Hong Kong Univ. of S&T, Hong Kong
C.-C. Lee  BOE Tech. Group, China
K. R. Sarma  Honeywell Int., USA
H.-P.D. Shieh  Nat. Chiao Tung Univ., Taiwan
D. Theis  Tech. Univ. Munich, Germany
B. Wang  Southeast Univ., China
L. F. Weber  Consultant, USA

EXECUTIVE COMMITTEE
Executive Chair: M. Date  NTT
Executive Vice-Chair: Y. Kijima  Huawei Techs. Japan
Y. Oyamada  Tottori Univ.
T. Shiga  Univ. of Electro-Commun.
K. Takatori  NLT Techs.
Program Chair: R. Hattori  Kyushu Univ.
Program Vice-Chair: H. Kominami  Shizuoka Univ.
M. Shinohara  Omron
Program Secretary: O. Akimoto  Sony Semiconductor Solutions
M. Higuchi  NIMS
Y. Hisatake  Japan Display
T. Ishinabe  Tohoku Univ.
H. Kato  Sharp
Y. Kijima  Huawei Techs. Japan
Y. Nakai  Toshiba
M. Nakata  NHK
Y. Oyamada  Tottori Univ.
M. Tsuchida  NTT
K. Yamamoto  NICT
K. Morita  Nat. Traffic Safety & Environment Lab.
H. Shibata  Fuji Xerox
Publication Chair: H. Kumomi  Tokyo Tech
Publication Vice-Chair: T. Tsuzuki NHK
Publication: K. Ishikawa Tokyo Tech
H. Kawamura Salesian Polytechnic
Treasurer: T. Shiga Univ. of Electro-Commun.
Local Arrangement Chair: H. Sakurai IBLC
Local Arrangement Vice-Chair: K. Azuma Shimadzu
Exhibition Chair: Y. Hisatake Japan Display
Financial Supporting Chair: Y. Hisatake Japan Display
General Secretary: H. Kato Sharp
K. Yamamoto NICT
Senior Member: K. Ishii NHK
H. Okumura Toshiba
M. Omodani Tokai Univ.
Members: I. Fujieda Ritsumeikan Univ.
D. P. Gosain AKT
N. Hashimoto Citizen Holdings
H. Hirata Toray Eng.
M. Inoue Huawei Techs. Japan
M. Inoue Apple
S. Kaneko
T. Katoh ZEON
S. Kobayashi Tokyo Univ. of Sci. Yamaguchi
T. Komaki Panasonic
S. Komura Japan Display
H. Kuma Idemitsu Kosan
S. Maeda Tokai Univ.
K. Makita Canon
S. Naemura Tottori Univ.
T. Numao
Y. Sakamoto Hokkaido Univ.
H. Sakurai IBLC
A. Sasaki
Y. Shimodaira Shizuoka Univ.
M. Suzuki Merck
Y. Toko Stanley Elec.
T. Uchida Sendai Nat. College of Tech.
H. Uchiike Saga Univ.
Y. Yamamoto
Y. Yanagi
H. Yokoyama Kent State Univ.
M. Yuki Asahi Glass

WORKSHOP/TOPICAL SESSION CHAIRS

LCT T. Ishinabe Tohoku Univ.
AMD H. Kumomi Tokyo Tech
FMC K. Käläntär Global Optical Solutions
PH Y. Nakanishi Shizuoka Univ.
OLED T. Ikuta JNC Petrochem.
3D M. Tsuchida NTT
VHF Y. Hisatake Japan Display
PRJ S. Ouchi Hitachi
EP K. Hashimoto E Ink Japan
MEET M. Nakamoto Shizuoka Univ.
DES H. Okumura Toshiba
FLX M. Kimura Nagaoka Univ. of Tech
INP N. Hashimoto Citizen Holdings
3DSA K. Enami Tokyo. Tech
UXC H. Shibata Fuji Xerox
PROGRAM COMMITTEE

Program Chair: R. Hattori Kyushu Univ.
Program Vice-Chair: H. Kominami Shizuoka Univ.
Program Vice-Chair: M. Shinohara Omron
O. Akimoto Sony Semiconductor Solutions
M. Higuchi NIMS
Y. Hisatake Japan Display
T. Ishinabe Tohoku Univ.
H. Kato Sharp
Y. Kijima Huawei Techs. Japan
Y. Nakai Toshiba
M. Nakata NHK
Y. Oyamada Tottori Univ.
M. Tsuchida NTT
K. Yamamoto NICT
K. Morita Nat. Traffic Safety & Environment Lab.
H. Shibata Fuji Xerox

Committee:

LCT S. Ishihara Osaka Inst. of Univ.
AMD H. Minemawari AIST
FMC T. Tomono Toppan Printing
PH N. Miura Meiji Univ.
OLED H. Kuma Idemitsu Kosan
3D K. Yamamoto NICT
VHF K. Masaoka NHK
PRJ K. Ohara Texas Instr. Japan
EP T. Fujisawa DIC
MEET Y. Nakai Toshiba
DES Y. Oyamada Tottori Univ.
FLX T. Eguchi Sumitomo Bakelite
INP M. Sato Tokyo Tech
3DSA N. Inoue Ultra-Realistic Communications Forum
UXC J. Ichino Kagawa Univ.

Workshop on LC Science and Technologies

Workshop Chair: T. Ishinabe Tohoku Univ.
Program Chair: S. Ishihara Osaka Inst. of Tech.
Program Vice-Chair: S. Oka Japan Display
S. Shibahara Sony Visual Prods.
General Secretary: H. Wakemoto Japan Display
Program Committee: F. Araoka RIKEN
M. Funahashi Kagawa Univ.
I. Hirosawa JASRI
M. Inoue Apple
K. Ishikawa Tokyo Tech
Y. Iwashita DIC
Y. Iwata Sharp
A. Kubono Shizuoka Univ.
K. Miyachi JSR
T. Nose Akita Pref. Univ.
H. Okada Univ. of Toyama
M. Ozaki Osaka Univ.
M. Suzuki Merck
T. Takahashi Kogakuin Univ.
S. Takenori JNC Petrochem.

Workshop on Active Matrix Displays

Workshop Chair: H. Kumomi Tokyo Tech
Program Chair: H. Minemawari AIST
Program Vice-Chair: M. Inoue Huawei Techs. Japan
General Secretary: K. Suga Sharp
Program Committee:
- Y. Fujisaki NHK
- H. Hamada Kinki Univ.
- M. Hiramatsu Japan Display
- S. Horita JAIST
- H.J. Kim Yonsei Univ.
- M. Kimura Ryukoku Univ.
- N. Morosawa Samsung Display
- T. Noguchi Univ. of the Ryukyus
- T. Ozawa AU Optronics, Japan
- Y. Shibata Tohoku Univ.
- M. Shibazaki Innolux
- K. Takatori NLT Techs.
- Y.-H. Yeh ITRI

Workshop on FPD Manufacturing, Materials and Components

Workshop Chair: K. Käläntär Global Optical Solutions
Program Chair: T. Tomono Toppan Printing
General Secretary: R. Yamaguchi Akita Univ.
Program Committee:
- I. Amimori A51Tech
- T. Arikado Tech Trend Analysis
- S. Asari ULVAC
- A. Fujita JNC
- Y. Iimura Tokyo Univ. of A&T
- Y. Inoue Corning Japan
- H. Katoh Sharp
- K. Kurokawa Entegris
- D. Matsuura Dai Nippon Printing
- T. Mori Nitto Denko
- S. Namekawa Nippon Steel & Sumikin Chem.
- T. Nonaka Merck
- Y. Saitoh FUJIFILM
- T. Sato ZEON
- M. Shinohara Omron
- K. Tamai Asahi Glass
- T. Tsuzuki NHK
- T. Unate UNATE
- H. Yamamoto Utsunomiya Univ.
- Y. Yang CSOT

Workshop on Inorganic Emissive Display and Phosphors

Workshop Chair: Y. Nakanishi Shizuoka Univ.
Program Chair: N. Miura Meiji Univ.
General Secretary: N. Matsuda Toshiba Materials
Program Committee:
- K. Hara Shizuoka Univ.
- T. Hisamune Mitsubishi Chem.
- S. Itoh Futaba
- D. Jeon KAIST
- H. Kobayashi Tottori Univ.
- T. Kunimoto Tokushima Bunri Univ.
- T. Kusunoki Dexcelars
- T. Miyata Kanazawa Inst. of Tech.
- K. Ohmi Tottori Univ.
- D. Poelman Gent Univ.
- T. Shiga Univ. of Electro-Commun.
Workshop on OLED Displays and Related Technologies
Workshop Chair: T. Ikuta JNC Petrochem.
Program Chair: H. Kuma Idemitsu Kosan
Program Vice-Chair: T. Komatsu JOLED
General Secretary: T. Uchida Tokyo Polytechnic Univ.
Program Committee: C. Adachi Kyushu Univ.
M. Adachi Japan Display
S. Aratani Samsung Elect.
S. Enomoto Toshiba
T. Fukuda Saitama Univ.
T. Inoue TDK
Y. Kijima Huawei Techs. Japan
A. Mikami Kanazawa Inst. of Tech.
H. Murata J-AIST
S. Naka Univ. of Toyama
K. Nakayama Osaka Univ.
Y. Sakai MCRC
T. Shimizu NHK
S. Tokito Yamagata Univ.
T. Tsujii Pioneer
T. Wakimoto Merck

Workshop on 3D/Hyper-Realistic Displays and Systems
Workshop Chair: M. Tsuchida NTT
Program Chair: K. Yamamoto NICT
General Secretary: J. Arai NHK
Program Committee: M. Date NTT
M. Tsuboi NTT DOCOMO
H. Yamamoto Utsunomiya Univ.
S. Yano Shimane Univ.

Workshop on Applied Vision and Human Factors
Workshop Chair: Y. Hisatake Japan Display
Workshop Vice-Chair, Vice-General Secretary: S. Uehara Toshiba
Program Chair: K. Masaoka NHK
Program Vice-Chair: T. Nakatsue Sony
General Secretary: A. Yoshida Sharp
Program Committee: J. Bergquist Semiconductor Energy Lab.
Y. Endo Asahi Glass
N. Hiruma NHK-ES
H. Isono
T. Kurita NHK-Media Tech.
Y. Nakamura Mitsubishi Elec.
G. Ohashi Shizuoka Univ.
K. Sakamoto Panasonic
T. Shibata Tokyo Univ. of Social Welfare
Y. Shimodaira Shizuoka Univ.
H. Ujike AIST
Y. Imai Toshiba

149
Workshop on Projection and Large-Area Display and Their Components

Workshop Chair: S. Ouchi Hitachi
Program Chair: K. Ohara Texas Instr. Japan
Program Vice-Chair: S. Shikama Setsunan Univ.
General Secretary: T. Suzuki JVC KENWOOD
Vice-Secretary: O. Akimoto Sony Semiconductor Solutions
Vice-Secretary: M. Takaso Telepathy Japan
Program Committee: Y. Asakura Nittoh Kogaku
T. Fujiwara Hitachi
T. Fukui Yamanashi Univ.
T. Hashizume Seiko Epson
H. Hatanaka Ushio
T. Hayashi Okamoto Glass
H. Kanayama Panasonic
T. Kawazoe Univ. of Tokyo
H. Kikuchi NHK
H. Nakano Barco
H. Sugiu Mitsubishi Elec.
M. Takayama Honda
N. Tate Kyushu Univ.

Workshop on Electronic Paper

Workshop Chair: K. Hashimoto E Ink Japan
Program Chair: T. Fujisawa DIC
Program Vice-Chair: N. Kobayashi Chiba Univ.
General Secretary: Y. Toko Stanley Elec.
Program Committee: H. Arisawa Fuji Xerox
M. Higuchi NIMS
Y. Hotta Ricoh
S. Maeda Tokai Univ.
M. Omordani Tokai Univ.
N.-S. Roh Samsung Display
A. Suzuki Chiba Univ.
G. Zhou South China Normal Univ.

Workshop on MEMS and Emerging Technologies for Future Displays and Devices

Workshop Chair: M. Nakamoto Shizuoka Univ.
Program Chair: Y. Nakai Toshiba
General Secretary: T. Ichihara Panasonic
Vice-Secretary: T. Komoda Yamagata Univ.
Program Committee: T. Akinwande MIT
Z. Y. Alpaslan Ostendo Techs.
G. Barbastathis MIT
Y. Bonnassieux Ecole Polytechnique
V. Bulovic MIT
S. Coe-Sullivan QD Vision
M. Esashi Tohoku Univ.
G. Fern Brunel Univ.
A. Flewitt Univ. of Cambridge
H. Fujita Univ. of Tokyo
P. H. Holloway Univ. of Florida
J. Jang Kyung Hee Univ.
P. Kathirgamanathan Brunel Univ.
H. Kikuchi NHK
J. M. Kim Univ. of Oxford
I. Kymissis Columbia Univ.
V. Lee Lumiode
J. Manders NanoPhotonica
Workshop on Display Electronic System
Workshop Chair: H. Okumura Toshiba
Workshop Vice-Chair: T. Yamamoto NHK
Program Chair: Y. Oyamada Tottori Univ.
General Secretary: T. Mitasaki NTT
Program Committee: T. Fujine Sharp
R. Hattori Kyushu Univ.
K. Käläntär Global Optical Solutions
L. Kerofsky InterDigital Commun.
H.-S. Koo Minghsin Univ. of S&T
O.-K. Kwon Hanyang Univ.
K. Makita Canon
K. Morita Nat. Traffic Safety & Environment Lab.
A. Nagase Mitsubishi Elec.
H. Nam Kyung Hee Univ.
H. Nitta Japan Display
S. Ono Apple
A. Sakaigawa Huawei Techs. Japan
K. Sekiya Kanagawa Inst. of Tech
S. Takamura NTT
T. Kishigami Mitsubishi Elec.

Workshop on Flexible Electronics
Workshop Chair: M. Kimura Nagaoka Univ. of Tech.
Program Chair: T. Eguchi Sumitomo Bakelite
General Secretary: Y. Mishima JAPERA
Program Committee: K. Akamatsu FUJIFILM
H. Endo NEC
H. Fujikake Tohoku Univ.
M. Funahashi Kagawa Univ.
T. Furukawa Yamagata Univ.
H. Hirata Toray Eng.
M. Ito Toppan Printing
T. Kamata AIST
H. Maeda DNP
A. Miyamoto Univ. of Tokyo
T. Nagase Osaka Pref. Univ.
M. Nakata NHK
A. Nakazawa Asahi Glass
T. Sekitani Osaka Univ.
T. Shiro Teijin
T. Tomono Toppan Printing
K. Uemura Nippon Steel & Sumitomo Metal
Y. Uraoka NAIST

Workshop on Touch Panels and Input Technologies
Workshop Chair: N. Hashimoto Citizen Holdings
Program Chair: M. Sato Tokyo Tech
Y.-T. Kim  Korea Radio Promotion Assn.
S.-H. Lai  Nat. Tsing Hua Univ.
B. Lee  Seoul Nat. Univ.
G. Lee  ETRI
J. Y. Lee  ETRI
H.-Y. Lin  Nat. Taiwan Univ.
D. Miyazaki  Osaka City Univ.
H. Mizushima  Tokushima Univ.
Y.-L. Moon  Chosun Univ.
J.-I. Park  Hanyang Univ.
M.-C. Park  KIST
H. Saitoh  Keio Univ.
T. Senoh  NICT
Y. Seo  Sogang Univ.
Y.-H. Seo  Kwangwoon Univ.
W.-C. Su  Nat. Changhua Univ. of Education
Y. Takaki  Tokyo Univ. of A&T
C.-H. Tsai  DOE
C.-L. Wang  Wiston
G.-Z. Wang  PixArt Imaging
H. Yamamoto  Utsunomiya Univ.
S. Yea  LG Elect.
J. Yoo  Kwangwoon Univ.
H. Yoshikawa  Nihon Univ.

Topical Session on User Experience and Cognitive Engineering
Workshop Chair:  H. Shibata  Fuji Xerox
Program Chair:  J. Ichino  Kagawa Univ.
General Secretary:  H. Terabe  Fuji Xerox

Special Topics of Interest on Oxide-Semiconductor TFT
Facilitator:  M. Kimura  Ryukoku Univ.
Program Committee:
AMD  H. Kumomi  Tokyo Tech
FMC  R. Yamaguchi  Akita Univ.
FLX  M. Nakata  NHK

Special Topics of Interest on AR/VR and Hyper Reality
Facilitator:  Y. Oyamada  Tottori Univ.
Program Committee:
FMC  K. Käläntär  Global Optical Solutions
FMC  M. Shinohara  Omron
3D  M. Tsuchida  NTT
VHF  S. Uehara  Toshiba
PRJ  K. Ohara  Texas Instr. Japan
DES  Y. Oyamada  Tottori Univ.
INP  N. Hashimoto  Citizen Holdings

Special Topics of Interest on Lighting and Quantum Dot Technologies
Facilitator:  Y. Kijima  Huawei Techs. Japan
Program Committee:
FMC  K. Käläntär  Global Optical Solutions
PH  K. Hara  Shizuoka Univ.
OLED  H. Kuma  Idemitsu Kosan
MEET  Y. Nakai  Toshiba
FLX  A. Miyamoto  Univ. of Tokyo

Special Topics of Interest on Printed Electronics
Facilitator:  M. Nakata  NHK
Program Committee:
LCT  T. Ishinabe  Tohoku Univ.
AMD  H. Minemawari  AIST
FMC  T. Tomono  Toppan Printing
OLED  T. Komatsu  JOLED
FLX  M. Nakata  NHK

Special Topics of Interest on Automotive Displays
Program Committee:
OLED  T. Ikuta  JNC Petrochem.
3D  M. Tsuchida  NTT
VHF  S. Uehara  Toshiba
PRJ  K. Ohara  Texas Instr. Japan
DES  K. Morita  Nat. Traffic Safety & Environment Lab.
FLX  Y. Uraoka  NAIST

FINANCIAL SUPPORTING ORGANIZATIONS (as of August 7, 2016)
ASAHI GLASS CO., LTD.
Japan Display Inc.
Nichia Corporation
SHARP CORPORATION

SUPPORTING MEMBERS (as of August 7, 2016)
EIZO Corporation
JAPAN BROADCASTING CORPORATION
JNC Corporation
Merck Ltd.
NLT Technologies, Ltd.
TOKYO ELECTRON LIMITED
Toshiaba Corporation
ULVAC, Inc.
(1) Registration Fees
The registration fee includes admission to the conference and a USB Flash Drive of the proceedings. In addition, a printed Final Program including abstracts of each paper will be provided at the conference site. No refunds will be made on and after October 29, 2016.

<table>
<thead>
<tr>
<th></th>
<th>ITE/SD/ASO Member*1</th>
<th>Non-Member*2</th>
<th>Student*4</th>
<th>Life Member of ITE/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Until October 28</td>
<td>¥40,000</td>
<td>¥50,000</td>
<td>¥13,000</td>
<td>¥13,000</td>
</tr>
<tr>
<td>On and After October 29</td>
<td>¥50,000</td>
<td>¥60,000</td>
<td>¥15,000</td>
<td>¥15,000</td>
</tr>
</tbody>
</table>

*1 ASO: Academic Supporting Organizations. See p.16 as well as “Supporting Organizations and Sponsors” at the end of each workshop section in the Advance Program.
*2 Individual member
*3 If you intend to join either ITE or SID, the one year membership fee will be subsidized by the IDW/AD ’16 Committee.
*4 Photocopy of your student ID is required.

(2) Reception Fee
Until October 28 ¥8,000
On and After October 29 ¥10,000
One free ticket will be provided to each invited speaker.

(3) Additional Proceedings (USB Flash Drive)
At the Conference Site ¥8,000
Airmail after the Conference ¥1,200
Domestic Mail after the Conference ¥1,000

Accommodations
JTB Convention Support Center will handle arrangements for your hotel reservations. Room rates include breakfast, service charge, and 8% consumption tax.

Reservation
Access http://www.idw.or.jp/accommodation.html
Phone: +81-92-751-2102 FAX: +81-92-751-4098
Email: travel_idw2016@kys.jtb.jp

<table>
<thead>
<tr>
<th>Area</th>
<th>No. in map</th>
<th>Hotel Name</th>
<th>Phone</th>
<th>Rates (per person per night)</th>
<th>Internet Access</th>
<th>Nearest Train Station</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Single</td>
<td>Twin/Single occupancy</td>
<td>Twin/Double occupancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fukuoka</td>
<td>1</td>
<td>Ana Crowne Plaza Fukuoka</td>
<td>+81-92-471-7111</td>
<td>¥20,000</td>
<td>¥25,500</td>
<td>¥16,000</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Hotel Nikko Fukuoka</td>
<td>+81-92-482-1117</td>
<td>¥17,500</td>
<td>¥27,000</td>
<td>¥17,500</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>NISHITETSU HOTEL CROOM HAKATA</td>
<td>+81-92-413-5454</td>
<td>¥13,800</td>
<td>¥22,000</td>
<td>¥13,800</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>YAOJI HAKATA HOTEL</td>
<td>+81-92-483-5111</td>
<td>¥8,500</td>
<td>—</td>
<td>¥7,500</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>SUTTON HOTEL HAKATA CITY</td>
<td>+81-92-433-2305</td>
<td>¥8,500~</td>
<td>—</td>
<td>¥6,500~</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>TOYO HOTEL</td>
<td>+81-92-474-1121</td>
<td>¥8,000</td>
<td>—</td>
<td>¥6,900</td>
</tr>
<tr>
<td>Fukuoka</td>
<td>7</td>
<td>HAKATA EXCEL HOTEL TOKU</td>
<td>+81-92-262-0109</td>
<td>¥13,500~</td>
<td>¥17,000~</td>
<td>¥9,000~</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Imperial Palace CITY HOTEL</td>
<td>+81-92-262-2009</td>
<td>¥9,000~</td>
<td>¥12,500~</td>
<td>¥7,600~</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>VESSEL INN HAKATA NAKASU</td>
<td>+81-92-271-4055</td>
<td>¥8,800~</td>
<td>—</td>
<td>¥7,500~</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>HOTEL HAKATA PLACE</td>
<td>+81-92-404-7770</td>
<td>¥8,300</td>
<td>—</td>
<td>¥8,000</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Reisenkaku Hotel Kawabata</td>
<td>+81-92-281-1811</td>
<td>¥7,500~</td>
<td>—</td>
<td>¥6,900~</td>
</tr>
</tbody>
</table>

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
<table>
<thead>
<tr>
<th>Date</th>
<th>1F Lobby</th>
<th>2F</th>
<th>3F</th>
<th>4F</th>
<th>5F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>8:00 - 18:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INP1</td>
<td>13:00 - 14:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3DSA1/3D1</td>
<td>13:00 - 14:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AMD1</td>
<td>13:00 - 14:25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LCT1</td>
<td>13:00 - 14:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FMC1</td>
<td>13:00 - 14:22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OLED1</td>
<td>13:00 - 14:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VHF1</td>
<td>13:00 - 14:05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UXC1</td>
<td>13:00 - 14:25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INP2</td>
<td>14:40 - 16:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3DSA2</td>
<td>14:40 - 16:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AMD2</td>
<td>14:40 - 15:15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LCT2</td>
<td>14:40 - 15:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FMC2</td>
<td>14:40 - 16:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OLED2</td>
<td>14:40 - 16:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP1</td>
<td>14:40 - 15:55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UXC2</td>
<td>14:40 - 16:00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INP3</td>
<td>16:20 - 17:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3DSA3</td>
<td>16:20 - 17:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AMD3</td>
<td>16:20 - 17:50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LCT3</td>
<td>16:20 - 17:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FLX1</td>
<td>16:20 - 17:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OLED3</td>
<td>16:20 - 17:20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PH1</td>
<td>16:20 - 17:30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VHF3</td>
<td>16:20 - 17:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IDW / AD '16 Workshop Timetable

**Friday, December 9**

- **Registration**: 17:00 - 20:00
- **Evening Get-Together at RACOUNTER (1F)**
- **Lunch**
- **Break**
- **Poster**
- **LCT35 AMD5 Pr10**
- **FLX5 OLED5 EP5 UXC3**
- **Author Interviews**: 17:40 - 18:20

**Saturday, December 10**

- **Registration**: 8:00 - 18:00
- **Lunch**
- **Break**
- **Poster**
- **LCT4 AMD9 Pr12 FLX5 OLED5 EP5 UXC3**
- **Author Interviews**: 10:30 - 11:10

**Sunday, December 11**

- **Registration**: 8:00 - 13:00
- **Lunch**
- **Break**
- **Poster**
- **LCT3 AMD5 Pr12 FLX5 OLED5 EP5 UXC3**
- **Author Interviews**: 12:00 - 12:40

**Monday, December 12**

- **Registration**: 8:00 - 13:00
- **Lunch**
- **Break**
- **Poster**
- **LCT3 AMD5 Pr12 FLX5 OLED5 EP5 UXC3**
- **Author Interviews**: 16:30 - 17:10

† Including Short Presentations
<table>
<thead>
<tr>
<th>IDW / AD '16 Session Navigator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday, December 7</strong></td>
</tr>
<tr>
<td><strong>PM</strong></td>
</tr>
<tr>
<td><strong>User Experience &amp; Cognitive Engineering</strong></td>
</tr>
<tr>
<td><strong>3D/Hyper-Realistic Displays</strong></td>
</tr>
<tr>
<td><strong>603</strong></td>
</tr>
<tr>
<td><strong>Active-Matrix Displays</strong></td>
</tr>
<tr>
<td><strong>Display Electronic Systems</strong></td>
</tr>
<tr>
<td><strong>Emissive Technologies</strong></td>
</tr>
<tr>
<td><strong>Emerging Technologies &amp; Novel Applications</strong></td>
</tr>
<tr>
<td><strong>e-Paper</strong></td>
</tr>
<tr>
<td><strong>Flexible Electronics</strong></td>
</tr>
<tr>
<td><strong>Interactive Technologies</strong></td>
</tr>
<tr>
<td><strong>Human Factor</strong></td>
</tr>
<tr>
<td><strong>Human Factors</strong></td>
</tr>
<tr>
<td><strong>412</strong></td>
</tr>
<tr>
<td><strong>Liquid-Crystal Technologies</strong></td>
</tr>
<tr>
<td><strong>412</strong></td>
</tr>
<tr>
<td><strong>Manufacturing, Process &amp; Equipment</strong></td>
</tr>
<tr>
<td><strong>413</strong></td>
</tr>
<tr>
<td><strong>Materials &amp; Components</strong></td>
</tr>
<tr>
<td><strong>413</strong></td>
</tr>
<tr>
<td><strong>MEMS</strong></td>
</tr>
<tr>
<td><strong>409</strong></td>
</tr>
<tr>
<td><strong>Organic Light-Emitting Displays &amp; Organic Devices</strong></td>
</tr>
<tr>
<td><strong>501</strong></td>
</tr>
<tr>
<td><strong>Projection &amp; Large Area Displays</strong></td>
</tr>
<tr>
<td><strong>412</strong></td>
</tr>
</tbody>
</table>

A.I.: Author Interviews

*Joint Session