Final Call for Papers

IDW '19 - The 26th International Display Workshops

November 27-29, 2019
Sapporo Convention Center, Sapporo, Japan
Sponsored by
The Institute of Image Information and Television Engineers
The Society for Information Display
https://www.idw.or.jp/

FEATURES

IDW consists of workshops technically categorized into specialized fields playing important roles in information display technologies. This year 3DSA (co-hosted by the international conference on Three Dimensional Systems and Applications) will be held as a topical session. Each workshop organizes its own sessions which consist of oral presentations by invited/contributing speakers and poster presentations where detailed and fruitful discussions on each specialized R&D update are provided. Some workshops also come together to form the common sessions called "Special Topics of Interest". The workshops should be of interest not only to researchers and engineers, but also to those who manage companies and institutions in the information display community.

CONFERENCE SITE

The city of Sapporo in Hokkaido is the northernmost city designated by government ordinance in Japan with a population of about 2 million. The word "Sapporo" is originated from the Ainu (indigenous people of Japan) language. Sapporo is known for the functional grid of streets and avenues as a city modeled after Kyoto. Dishes using local Hokkaido produce and seafood also rank among the charms of Sapporo. Visitors can enjoy delicious food that includes fresh seafood, a wide range of fruits, and fancy confectionery.
Access: JR Sapporo station is located about 45km from New Chitose Airport and it takes about 40 minutes by "Rapid Airport Train" from New Chitose Airport. Sapporo Convention Center is located about 3km from JR Sapporo station and about 8 minutes on foot from "Higashi-Sapporo" station (about 10 minutes by subway from Sapporo subway station).

Please see the following websites for more information.
- Sapporo Convention Center: http://www.sora-scc.jp/eng/index.html
- Sapporo City: http://www.welcome.city.sapporo.jp/english/
- JR Hokkaido (Hokkaido Railway Company): http://www2.jrhokkaido.co.jp/global/index.html

DEADLINES AND KEY DATES

Submission of Technical Summary ---------- June 19, 2019
Acceptance Notification/Author's Kit Available on the Website ---------- July 22, 2019
Presenter's Registration ----------September 4, 2019
Submission of Camera-Ready Manuscript & Abstract ----------September 4, 2019
Submission of Late-News Paper ---------- September 17, 2019
Acceptance Notification of Late-News Paper------- October 7, 2019
Late-News Presenter's Registration ---------- October 23, 2019

REGISTRATION FEES

	Until Oct. 25	On and after Oct. 26
Individual Member of ITE/SID/ASO*	¥40,000	¥50,000
Non-Member	¥50,000	¥60,000
Student	¥13,000	¥15,000
Life Member of ITE/SID	¥13,000	¥15,000

*ASO: Academic Supporting Organizations

Keynote and Invited Addresses

Keynote Addresses
- ***Bringing the New Age Display with Social Innovation***
  Yasuhisa Itoh (Sharp)
- ***Human Centered Automotive Cockpit HMI***
  Taro Oike (Mazda Motor)

Invited Addresses
- ***Artificial Intelligence: from Pixels and Phonemes to Semantic Understanding and Interactions***
  Achin Bhowmik (Starkey Hearing Techs.)
- ***Monolithic Micro-LED Full-Color Micro-Displays***
  Kei May Lau (Hong Kong Univ. of S&T)

Special Topics of Interest

- ***AR/VR and Hyper Reality***
- ***Automotive Displays***
- ***Micro/Mini LEDs***
- ***Quantum Dot Technologies***

Paper submissions are eagerly recommended to these special topics.

Topical Session

- ***Artificial Intelligence and Smart Society***
- ***3DSA2019***

LANGUAGE

The official language is English.

Short Presentation

Poster presenters who are presenting "Short Presentation Session" are to be introduced as part of e-Paper and projection and large area displays sessions!

The latest information is available on https://www.idw.or.jp/
The Advance Program will be available at the end of August 2019, including REGISTRATION and HOTEL INFORMATION.

IDW SCOPE AND OUTLINES

International Display Workshops (IDW) includes a variety of topics and aspects of display technologies, systems, processes and applications. In particular, this year's IDW will feature the following 4 special topics and 2 topical sessions, which are extremely timely, as well as 16 general topics. The special topics are these recent hot topics: AR/VR and Hyper Reality, Automotive Displays, Micro/Mini LEDs, and Quantum Dot Technologies. The topical sessions are topic for new technologies: Artificial Intelligence and Smart Society, and 3DSA2019. This year IDW is held in conjunction with 3DSA2019:The 11th International Conference on 3D Systems and Applications.
The IDW Scope includes a variety of topics of display materials and components, display devices, electronic system, quality evaluation, interactive technologies, manufacturing processes and equipment, and applications listed below. We encourage the submission of original papers on all aspects of research, technical development, measurement systems, driving methods, data management and applications of information displays, and related technologies. We particularly encourage submissions on topics of emerging interest in the research and development communities.

SPECIAL TOPICS OF INTEREST

AR/VR and Hyper Reality

Organizing Workshops: LCT, FMC, 3D, VHF, PRJ, DES, INP and 3DSA
Facilitator: Yuji Oyamada (Tottori Univ.)

This topic will cover all aspects of technologies related to display applications closest to the end user such as virtual reality, augmented reality (mixture of VR and the real world), and hyper reality (hyper-realistic systems). Regarding recent development of VR devices, authors of all accepted papers are highly encouraged to present their demo in the I-DEMO session.

Scopes
1) Hardware: sensors, circuits, and displays including light field camera, motion capture, holographic technology, and HMD/HUD
2) Software technique: image processing, computer vision, computer graphics, audio-visual processing, and human-computer interaction
3) Application: systems for industry, medical, and education
4) The human factor in AR, VR, and hyper-realistic systems

Automotive Displays

Organizing Workshops: LCT, FMC, OLED, 3D, VHF, PRJ, DES, INP and 3DSA
Facilitator: Kazumoto Morita (Chuo Univ.)

The significance of visual interface has been increasing in automobiles. This topic will cover all aspects of display technologies used in or outside of automobiles, including the following scopes.

Scopes
1) OLED/LCD display and projection-display technologies for car interior use
2) Head-up displays, augmented reality, and intelligent cockpit for automobiles
3) Image and information processing for automotive displays
4) Materials/components/device structures suited to automobiles
5) Adaptive headlight system, and projection type signals for other road users
6) Vision and human factors for automobiles and other transport systems

Micro/Mini LEDs

Organizing Workshops: LCT, AMD, FMC, PH and MEET
Facilitator: Tohru Honda (Kogakuin Univ.)

Micro/Mini LEDs have recently attracted keen attentions in their applications to information displays.
This topic will cover all aspects and issues of technologies for flat-panel displays with Micro/Mini LEDs implemented densely.

Scopes
1) Materials, devices, opto-electrical designs and manufacture of discrete Micro/Mini LEDs
2) Materials, devices, opto-electrical designs and manufacture of Micro LEDs monolithically implemented onto panels
3) Emissive Micro/Mini LED displays
4) Passive-matrix displays (PMDs) with a discrete Micro/Mini LED on each pixel
5) Active-matrix displays (AMDs)
6) LCDs with Mini LED backlighting
7) Assembly implementation of Mini LEDs directly beneath LCD cells
8) Optical designs for diffuse propagation of backlight emitted from Mini LED
9) Driving methods for local dimming by backlighting Mini LED arrays
10) Novel applications of Micro/Mini LED-based displays

Quantum Dot Technologies

Organizing Workshops: LCT, FMC, PH, OLED and MEET
Facilitator: Toshiaki Ikuta (JNC)

This topic will cover all aspects of science and technologies of Quantum Dot (QD) and Quantum Rod (QR), ranging from materials research, device structure and properties, to device applications, manufacturing and high color gamut displays using QD/QR.

Scopes
1) Materials and properties for display or lighting
2) Novel Device structure and properties (QDCF, QLED, etc.)
3) New Device applications (Lighting, BLU, Display, etc.)
4) Device manufacturing processes (Inkjet, Roll to Roll, Photolithography, etc.)
5) High color gamut technology using QD/QR

TOPICAL SESSION

Artificial Intelligence and Smart Society

Session Chair: Mutsumi Kimura (Ryukoku Univ.)

Recently, artificial intelligence becomes a common technology, and it will be a key concept of smart society in the future, which is called Industry 4.0 and Society 5.0, where the cloud and edge are excellently connected. In this scope, the relationship between information displays, artificial intelligence, and smart society will be discussed. Some respective researchers will be invited as invited speakers, and some contributions from researchers being interested in these topics are welcomed.

3DSA2019

Session Chair: Shiro Suyama (Tokushima Univ.)

Three Dimensional Systems and Applications (3DSA) is an international conference on the cutting-edge technologies for hyper-realistic systems and applications. The 11th conference (3DSA2019) is held in conjunction with IDW '19.

Topic Area
1) Augmented Reality & Virtual Reality
2) 3D Capture, Processing, Coding, Transmission, Displays, Systems, Contents and Applications
3) Interactive Systems
4) Holographic Technology and Free Viewpoint Image Systems
5) Haptics Technologies
6) Scent Delivery Technologies
7) Human Brain Sensing and Human Perceptual and Cognitive Mechanisms
8) Other Related technologies for Hyper-realistic Systems

TOPICS OF IDW SCOPE

3D/Hyper-Realistic Displays

This topic will cover several current topics encompassing 3D/hyper-realistic displays, systems and other related technologies.

Topic Areas

1) Stereoscopic, autostereoscopic, holographic, volumetric, head-mounted and other 3D/hyper-realistic display systems
2) Immersive, interactive and VR display technologies
3) 3D/hyper-realistic image interaction systems for Augmented Reality (AR)
4) Image capturing and information detection systems such as Multiple cameras, light-field camera, depth camera, 3D scanner, and others for 3D/hyper-reality and interaction
5) Human brain sensing technologies and systems for hyper reality and interaction
6) Multi-spectral imaging
7) New output devices or systems for 3D/hyper-reality and interaction
8) Algorithms for image coding, 2D to 3D conversion, multi-viewpoint representation and other image processing for 3D/hyper-realistic display systems
9) Digital archive systems for cultural heritages, medical images and others using 3D/hyper-realistic image systems
10) Human factor and evaluation of 3D/hyper-realistic display techniques and systems
11) Pictorial cue

Active-Matrix Displays

This topic will cover all aspects of active matrix displays.

Topic Areas

1) Active-matrix displays technology related to liquid crystals, organic/inorganic light-emitting diodes, electrophoresis, electrochromism, field emission, micro-electro mechanical systems
2) Active devices including oxide TFTs, organic TFTs, silicon-based TFTs, CNT-FETs, Dirac-cone based devices (graphene, silicene, BN, MoS_2, etc.) and solution-processed devices
3) Issues in high-resolution/large-area active matrix display and devices including array and circuit design technologies, addressing schemes, systems, fundamentals, device physics, structures, processes, new materials, evaluation methods, reliability and mechanical testing
4) Novel emerging active-matrix displays and devices
5) Innovative applications of active-matrix devices.

Display Electronic Systems

This topic will cover general issues for display electronic systems.

Topic Areas

1) Driving methods, circuits, and systems
2) Video and still image processing including deinterlacing, scaling and, elimination of artifacts and blur
3) High quality color reproduction systems including high dynamic range and wide color gamut systems
4) High-fidelity systems such as professional use and master monitors
5) Exploration of future standards such as post-HDTV
6) Video interface technologies including data transmission and storage
7) Novel display systems including mobile/auto applications
8) Cooperative operations of functional components
9) Circuit technologies including high speed and low power driving
10) High image quality display systems, wide color gamut, and color reproduction.
11) Image processing algorithm for super-resolution, coding

e-Paper

This topic will cover all aspects of electronic paper ranging from materials science and devices to human factors and various applications for the future.

Topic Areas

1) Advancement of various display technologies for e-Paper to enhance colors, brightness and contrast ratio
2) Novel functional materials and components
3) Driving method
4) Human interfaces suitable for e-Paper from paper-like displays to tablet PCs
5) Various applications of e-Paper such as e-Books, e-Document, and IoT
6) Discussion of the social impact of e-Paper
7) Evaluation method taking account of human factors

Emissive Technologies

This topic will cover all aspects of science, technologies, and applications of phosphor, such as phosphor screens for electronic displays, lighting source, and other emissive devices, and will also deal with those for FEDs, ELDs and PDPs.

Topic Areas

1) Fundamental mechanisms and configurations
2) Modeling and simulation
3) Materials, components and fabrication processes
4) Field emission physics and characteristics
5) Inorganic ELDs (materials, process, devices, drive circuits, etc.)
6) LED (materials, devices, panels, lighting, etc.)
7) Phosphors for CRTs, PDPs, FEDs, VFDs and LEDs
8) Driving technologies and signal processing particularly embedded to emissive devices.
9) Picture quality, reliability and lifetime
10) Applications of CRTs, PDPs, FEDs and ELDs

Flexible Electronics

This topic will cover all aspects of flexible electronics, including material science, device physics, fabrication processes, and application systems for next-generation technology.

Topic Areas

1) Novel flexible devices in display and non-display fields
2) Flexible/stretchable mechanism and strategy
3) Flexible substrate innovation (plastic film, metal foil, ultra-thin glass sheet, textile, paper, etc.) and encapsulation
4) High-performance display principles (OLED, LCD, electronic paper, etc.)
5) Fabrication methods especially for flexible devices (printing techniques, roll-to-roll process, transfer techniques, etc.)
6) Tolerance evaluation for bending and stretching deformation
7) Revolutionary device applications (bendable, foldable, roll-up screen, hanging, wearable, wrapping usages, etc.)

Human Factor

This topic will cover all aspects of vision and human factors related to information displays, such as visual ergonomics and requirements, image quality, display measurements, as well as new display applications and ergonomics.

Topic Areas

1) Visual requirements for display performance: luminance, contrast, grayscale, color, resolution, frame rate, viewing angle, etc.
2) Display image format for better visual experience, such as UHD TV
3) Analysis and improvement of image quality on displays, such as HDR, high-quality color reproduction, wide gamut, or moving image artifacts
4) Evaluation of image quality, such as subjective evaluation of new displays, or quality-improvement methods
5) Display measurement methods relevant to human factors
6) Ergonomics of new display applications, such as AR/VR systems, automotive visual systems, 3D displays, LED backlights, etc.
7) Visual ergonomics, such as visual fatigue, eye strain, legibility/usability, or actions/behaviors related to visually displayed information
8) Physiological/psychophysical factors and biometrics
9) Sensory/perceptual/visual illusions

Interactive Technologies

Touch panel technology continues to evolve. Camera systems are often employed in auto-stereoscopic displays. Sensing and displaying 3D positions in space literally open a new dimension for a truly intuitive human interface. This topic covers all aspects of input technologies related to displays, ranging from materials, devices, application systems to discussions on how we interact with various systems.

Topic Areas

1) Out-cell, On-cell and In-cell touch panels
2) Touch panel materials, devices, production processes and systems
3) Image sensors
4) Adaptive and personalized interfaces
5) Input systems for augmented reality
6) Human-computer interaction and other emerging interactive technologies

Liquid Crystal Science and Technologies

This topic will cover all aspects of liquid crystal (LC) science and technologies, including LC material science, device technology, fabrication processes, evaluation method, and new technologies for display, photonics, and sensing applications.

Topic Areas

1) Physicochemical studies of LC materials
2) Nano-structural LC alignment and devices including blue phase
3) Surface alignment processes and characterization techniques
4) Electro-optic effects, display modes, optical design and simulations
5) Fabricating, manufacturing, measuring and evaluation techniques
6) High performance displays featuring excellent image quality including 8K-LCD technologies
7) Wide color gamut LCDs using QD or other new technologies
8) LC technologies for flexible displays, sunlight readable displays and low power electronic papers
9) Optical functional devices for non-display applications including LC lens, sensor, smart window and beam steering
10) LC semiconductors and organic electronics
11) LC photonic crystals and lasers
12) LC technologies for 3D / holographic displays

Manufacturing, Process and Equipment

This topic will cover technology trends and aspects of electronic displays from the perspective of manufacturing and printing fabrication processes.

Topic Areas

1) Fabrication methods of displays
2) Manufacturing process; photolithography, coating and printing technologies, soft lithography, roll-to-roll process and transfer techniques for high precision, and large area
3) Measurement and evaluation equipment

Materials and Components

Displays are sustained by a wide spectrum of advanced materials and components. In this topic, new materials and components for display systems, modifications and improvements of the existing systems are treated.

Topic Areas

1) Novel materials and components for display systems
2) Technology trends in panel structure and display systems
3) Manufacturing of optical components, devices or systems, and color filter technologies
4) Novel material and component technologies in automotive, avionics, shipboard, transparent, signage and simulator displays
5) LED/micro-LED/OLED/emissive source materials; quantum-dot/phosphor, lighting fixtures components, electro-optic devices and materials
6) Display lighting materials/components and fabrications, including light directing films
7) New developments in backlight unit (BLU) and frontlight unit (FLU) for transmissive, reflective, and transflective displays
8) Innovative technologies on material and component for 3D (stereoscopic, volumetric, holographic, light field) displays, AR/VR, flexible electronics, ultra-high resolution, EPD, MEMS/MEOMS and Sensor

MEMS

This topic will cover all aspects of science and technologies of MEMS for future displays, imaging devices, and related electron devices, ranging from materials research and basic device physics to display and other applications.

Topic Areas

1) Displays, imaging devices and other optical and electron devices using MEMS
2) Optical MEMS such as optical scanners, optical switches, optical mirrors, optical space modulators, optical filters, etc.
3) Sensors and actuators
4) Materials, components and fabrication processes
5) Fundamental mechanisms and configurations

OLED Displays and Organic Devices

This topic will cover all aspects of science and technologies of OLED, ranging from materials research and basic device physics to display including backplane technologies and other applications.

Topic Areas

1) Materials for organic devices (OLED, OTFT, OLET, QLED)
2) Device physics and related phenomena of organic devices
3) Backplane technologies for OLED applications
4) Fabrication processes for organic devices
5) Miscellaneous topics related with organic devices
6) Fundamental mechanisms and configurations of organic devices
7) OTFT for OLED displays
8) Organic light-emitting transistors (OLET)
9) Quantum-dot light-emitting devices (QLED)
10) OLED for lightings
11) Flexible organic materials and devices for OLED

Oxide-Semiconductor TFT

Recently, research and development on metal-oxide semiconductors have been carried out worldwide. Currently, a-IGZO TFTs have already been mass produced for use in AM-LCDs and AM-OLEDs. This topic will cover all aspects of science and technologies for oxide-semiconductor TFTs.

Topic Areas

1) Materials, device physics, illumination instability, degradation, fabrication processes, and production equipment
2) Display backplanes for LCD, OLED displays and e-Paper, circuits, and embedded systems
3) Flexible devices, transparent electronics, sensors, and other applications

Projection and Large Area Displays

This topic will cover all aspects of science, technologies and applications of projection, large area displays and the components.

Topic Areas

1) Projectors (conventional, pico, embedded, laser scanning, projection TV)
2) Intelligent display (wearable, near-eye, AR&VR, applications)
3) Microdisplay (LCOS, MEMS, HTPS) technologies for projection
4) Optics and optical components (light sources, screens, lenses, mirrors, films, etc.) for projection
5) Algorithms for image processing and artifact mitigation for projection and large area displays
6) Applications such as digital cinema, 3-D projection, 3-D measurement, signage, interior illumination, medical health care, and vehicle display systems including head up display, intelligent cockpit, and adaptive headlight
7) Large-area displays, tiled-displays, and projection mapping systems
8) Sensing applications (ToF, LIDAR, Machine Vision, etc.) in projection technology

User Experience and Cognitive Engineering

This topic will cover all aspects of social studies, cognitive science, and human-computer interaction that aim to open new use scenarios of displays.

Topic Areas

1) Ethnography and social studies
2) Survey and analysis of user needs
3) Cognitive experiments and design of displays
4) Novel interaction techniques and interactive applications
5) Computer-supported cooperative work (CSCW) using displays
6) Digital reading applications and educational software
7) Entertainment computing and media art

PAPER SUBMISSION

INSTRUCTIONS FOR SUBMISSION OF TECHNICAL SUMMARY

Submit a Technical Summary in PDF format without any security option via the conference website:

https://www.idw.or.jp/authinfo.html

Follow the submission instructions given on the website and shown below. The Technical Summary will be used only for evaluation and will not be published. The title of the accepted papers, the authors and their affiliations will be published in the Advance Program.

I. Technical Summary Guidelines

The file must be formatted to A4-sized paper. Details of the format and guidelines are described in the sample file available on the website (https://www.idw.or.jp/authinfo.html).

The file must contain one or two pages of text in **one column**, with additional pages for figures/tables/photographs. The following items must be included:

(1) Paper title

(2) Names of all authors with their affiliations: The name of the presenting author must be underlined.

(3) Abstract: 50 words or less, highlighting the focus of your paper.

(4) Presentation style preference: Indicate if you wish to have your paper considered for oral or poster presentation.

(5) Preference of Special Topics of Interest / Topical Session / Scopes: Indicate the closest matching Topics.

(6) The body of the Technical Summary: Include the following:

(a) Background and objectives: Introduce the subject and describe the goal of your work.

(b) Results: Describe specific results. Illustrations to highlight your work are encouraged.

(c) Originality and novelty: Clearly describe any new and/or emphasized points to illustrate the originality and novelty of your work.

(d) Impact: Discuss the significance of your work and compare your findings with previously published works.

(e) References: List references cited in the Technical Summary.

(f) Prior publications: The paper must be an original contribution. If you have published or presented material for similar work, explain how the present material differs from them.

II. Online Submission

Access **https://www.idw.or.jp/authinfo.html**

The submission procedure consists of two steps:

(1) Account registration: Please click on the link "Create an Account". You will first have to create your author account and register your information including e-mail address. **An acceptance/reject notification will be sent to you via the e-mail address that you provided on the website.**

(2) Submission: To start your submission, please log in to your account and then click on the button "New Submission". Register all authors' names, affiliations, the Scope/Special Topics of Interest name, presentation preference and the paper title. And then upload the technical summary in PDF file. Please confirm the paper title and the author information carefully before the submission. The author information you registered will be used in advance and final programs with no change. When the paper is successfully submitted, a "Your submission has been received" message will appear on the screen and you will also receive a submission confirmation e-mail.
Please understand that the title may be edited by the program committee.

FORMAT OF PRESENTATION

Accepted papers will be assigned for either oral or poster presentation in the most suitable topics among the IDW Special Topics of Interest / Topical Session / Scopes, at the discretion of the program committee.

(1) Oral presentations

- Oral presentations will usually conform to the 20-minute format including a question and answer period. The program committee will determine the duration of each presentation.
- Oral presenters are strongly urged to attend the Author Interviews after the presentation (a table and AC 100 V power will be made available).

(2) Poster presentations

- Poster presentations will conform to the less than 3-hour format and will be given in front of an individual poster on a board.
- A small table and power supply of 100 V 50 Hz are available, with which authors can demonstrate small prototype devices or materials.
- "Short Presentation Sessions" will be held for a part of the poster sessions to introduce the posters and the presenters. The poster presenters in the sessions can give a brief (typically 3-minute) oral-presentation with no discussion time.

ACCEPTANCE

The author will be notified of the results of their Technical Summary review via e-mail. Upon acceptance of the paper based on the Technical Summary, the authors must prepare a camera-ready manuscript to be published in the conference proceedings. The author must use the manuscript template, which will soon be available on the conference website. Acceptance is subject to the following conditions:

(1) Registration of the presenter's participation in IDW '19 is required before the camera-ready submission.

(2) Each presentation requires a registration fee. Payment of registration fees must be completed by the camera-ready submission.

(3) Contact the IDW secretariat if you will give multiple presentations for more than one paper.

(4) All company or government releases must be obtained.

(5) The author must be the copyright holder or have written permission from the copyright holder for any materials used in the paper.

(6) The camera-ready manuscript submitted to the conference proceedings must not be published in any media, including personal websites on the Internet, before it is presented at the conference.

(7) One of the authors must give a presentation at the conference. For the poster session, at least one of the authors must stand by their posters during their session.

(8) Note that the acceptance may be withdrawn in the case of inferior camera-ready manuscripts.

(9) The camera-ready manuscript must be three or four pages in length and in a two-column format.

LATE-NEWS PAPERS

A limited number of late-news papers on very important new findings or developments can be accepted. Authors are requested to submit a 2-4 page camera-ready manuscript on A4-sized paper accompanied by an abstract. Access the conference website (https://www.idw.or.jp/authinfo.html) and follow the submission instructions given there.

COPYRIGHT

The copyrights of your submitted camera-ready manuscript will be transferred to ITE and SID. The copyright terms and conditions are available on the conference website (https://www.idw.or.jp/copyright.pdf).

TRAVEL GRANTS

A limited number of travel grants will be available to full-time student presenters attending from outside Japan. Those who wish to apply for the student travel grant, please tick the box for the student travel grant on the online application.

IDW Best Paper Award, IDW Outstanding Poster Paper Award and IDW Demonstration Award

The award committee of IDW will select the most outstanding papers and demonstration from those presented at IDW '19. The winners will be announced on the IDW website.

Invited Talks

- **Driver Technology for 8K Ultra High Definition TV**
  Hyun-Wook Lim (Samsung)
- **Next Generation Video Coding in 8K Era - Versatile Video Coding and AI**
  Tomohiro Ikai (Sharp)
- **Novel Liquid Crystal Display Mode "UV2AII" with Photo Alignment Technology for a Large-Screen 8K Display**
  Shinichi Terashita (Sharp)
- **Transport of Ions and Electrons in Nanostructured Liquid Crystals for Their New Applications**
  Takashi Kato (Univ. of Tokyo)
- **17-in. Laser Backlight LCD with 8K, 120 Hz Driving and BT.2020 Color Gamut**
  Yoichi Asakawa (Japan Display)
- **Fundamentals and Applications of Liquid Crystal-Based, Polarization-Dependent Diffractive Optics**
  Hiroyuki Yoshida (Osaka Univ.)
- **Emerging Display Devices with Pancharatnam-Berry Optical Elements**
  Tao Zhan (Univ.of Central Florida)
- **Challenges and Advantages of Flexible LCD**
  Shi Yu (Shenzhen China Star Optoelect. Semiconductor Display Tech.)
- **A Modeling Approach to Investigate the Relationship Between Motion Sickness Severity and Visual Motion**
  Akira Tanaka (Fukushima Univ.)
- **Novel Pixel Structure for the Improving Optical Performances of 8K LCD Panel**
  Kwangsoo Bae (Samsung Display)
- **Magic Pot: Interactive Metamorphosis of the Perceived Shape**
  Yuki Ban (Univ. of Tokyo)
- **Real-World Implementations of Visual Illusions by Using Augmented Reality Techniques**
  Takahiro Kawabe (NTT)
- **Innovative Mobile Force Display: Buru-Navi**
  Hiroaki Gomi (NTT)

The titles are tentative. Additional invited talks are being arranged.

OVERSEAS ADVISORS

Brian H. Berkeley	(Highlight Display, USA)	Chung-Chun Lee	(BOE Tech. Group, China)
Achin Bhowmik	(Starkey Hearing Techs., USA)	Joe Miseli	(JVM Research, USA)
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Hoi-Sing Kwok	(Hong Kong Univ. of S&T, Hong Kong)	Baoping Wang	(Southeast Univ., China)
Kei May Lau	(Hong Kong Univ. of S&T, Hong Kong)	Larry F. Weber	(Consultant, USA)

WORKSHOPS AND CHAIRS

All of the IDW topics will be organized by following workshops and Topical Sessions.

LCT	LC Science and Technologies	: *Koichi Miyachi (JSR)*
AMD	Active Matrix Displays	: *Kazumasa Nomoto (Sony)*
FMC	FPD Manufacturing, Materials and Components	: *Hirotsugu Yamamoto (Utsunomiya Univ.)*
PH	Inorganic Emissive Display and Phosphors	: *Yoichiro Nakanishi (Shizuoka Univ.)*
OLED	OLED Displays and Related Technologies	: *Takahisa Shimizu (NHK)*
3D	3D/Hyper-Realistic Displays and Systems	: *Masaru Tsuchida (NTT)*
VHF	Applied Vision and Human Factors	: *Shin-ichi Uehara (AGC)*
PRJ	Projection and Large-Area Displays and Their Components	: *Satoshi Ouchi (Hitachi)*
EP	Electronic Paper	: *Keisuke Hashimoto (E Ink Japan)*
MEET	MEMS and Emerging Technologies for Future Displays and Devices	: *Masayuki Nakamoto (Shizuoka Univ.)*
DES	Display Electronic Systems	: *Haruhiko Okumura (Toshiba)*
FLX	Flexible Electronics	: *Toshihide Kamata (AIST)*
INP	Touch Panels and Input Technologies	: *Nobuyuki Hashimoto (Citizen Watch)*
AIS	Artificial Intelligence and Smart Society	: *Mutsumi Kimura (Ryukoku Univ.)*
3DSA	3DSA2019	: *Shiro Suyama (Tokushima Univ.)*

CHAIRS

General Chair	Executive Chair	Program Chair
Shinichi Komura (Japan Display)	Hiromi Kato (Sharp)	Munehiro Kimura (Nagaoka Univ. of Tech.)
general-chair19@idw.or.jp	executive-chair19@idw.or.jp	program-chair19@idw.or.jp

Kobayashi-Uchiike-Mikoshiba Prize

Kobayashi-Uchiike-Mikoshiba Prize shall be conferred by the International Display Workshops (IDW) General Incorporated Association Board of Directors upon a person with both an outstanding record of accomplishments in any of the IDW fields of interest and an outstanding contribution to the IDW. The accomplishments that are being honored shall have contributed importantly to the advancement or application of engineering, science and technology, bringing the realization of significant value to society.

I-DEMO for All Oral and Poster Presenters

I-DEMO (Innovative Demonstration Session) offers an opportunity to present impressive and innovative display experiences to all participants aimed at deeper discussion. All oral and poster presenters can apply for the demo. We highly encourage a wide variety of demonstrations from leading edge hardware to interactive systems.

Further details about I-DEMO including the deadline and registration method will be announced on the following page.

https://www.idw.or.jp/idemo.html

SPECIAL EVENT "Sensory Illusion"

Exhibition

Touch and somatic illusions and amazing artworks such as "impossible object illusion" will be exhibited.

Special Talks

Variety of Visual Illusions Akiyoshi Kitaoka (Ritsumeikan Univ.)
Mathematics of 3D Illusion Kokichi Sugihara (Meiji Univ.)
Related technical sessions will be held.

EXHIBITION

The IDW '19 Exhibition covers display devices and all related matters. To make an exhibition, please contact the IDW '19 Secretariat.

ITE IDW '19 SID SOCIETY FOR INFORMATION DISPLAY

The 26th International Display Workshops
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