IDW/AD ’12 will integrate fifteen workshops in specialized fields playing important roles in information display activities. Each workshop will consist of oral presentations by invited/contributed speakers and poster presentations. Detailed and fruitful discussions on each specialized R&D update will be provided. Three topics, oxide TFT, augmented reality and lighting technologies are specially highlighted this year. The workshops should be of interest not only to researchers and engineers, but also to those who manage companies and institutions in the display community.

Kyoto International Conference Center was established in 1966, as Japan’s first state-sponsored international conference center. Please see the following websites for more information. http://www.icckyoto.or.jp/en/index.html

Access:
About 75 minutes by Airport Shuttle Train “Haruka” from Kansai International Airport to Kyoto Station.
2 hours 15 minutes by Shinkansen (Bullet Train) from Tokyo Station to Kyoto Station.
The Subway is the easiest method of transportation to reach the Kyoto International Conference Center, located at the north end of the Karamusa line. It takes 20 minutes from Kyoto Station.

DEADLINES AND KEY DATES

Submission of Technical Summary - June 22, 2012
Acceptance Notification/Author’s Kit available on the website - July 19, 2012
Submission of Camera-Ready Manuscript & Abstract - September 6, 2012
Submission of Late-News Paper - September 28, 2012
Early Bird Registration Discount - November 2, 2012

LANGUAGE

The official language is English.

The latest information is available on http://www.idw.ne.jp/

IDW/AD ’12 CHAIRS

General Chair
Nobuki Ibaraki (AIST)
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Executive Chair
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Program Chair
Makoto Omodani (Tokai Univ.)
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The Advance Program will be available in September 2012, including REGISTRATION and HOTEL INFORMATION.
Following the epoch-making paper presented by Prof. Hosono’s team, research on amorphous In-Ga-Zn-O (a-IGZO) has been carried out worldwide. Research for other materials and polycrystalline oxide semiconductor TFTs has also been activated. This year, several companies are ready to use the a-IGZO TFTs for the mass production of AM-LCD and AM-OLED, after a long incubation period from the first report on a ZnO TFT in 1968. This special topic will cover all aspects of oxide-semiconductor-TFT-related science and technologies.

### Oxide TFT

#### Scopes
1. Oxide semiconductor materials and fundamental mechanisms
2. Device physics, fabrication processes and equipments
3. Oxide-TFT display circuits and embedded systems
4. Issues: illumination instability, degradation, etc.
5. Oxide-TFT backplane for LCD, OLED display, e-Paper
6. Flexible devices, transparent electronics and other applications

This topic will cover all aspects of technologies, systems, applications and human factors for information display using a fusion of real and virtual.

### Augmented Reality (AR)

#### Scopes
1. Augmented reality (AR) and mixed reality (MR) technologies
2. Projection mapping
3. Displays for AR and MR (HMD etc.)
4. Input and interactive technologies for AR and MR
5. Image processing for AR and MR
6. Technologies about the internal or external efficiency enhancement
7. Theories, Simulations and Measurements for Lightings
8. Energy Consumption and Environmental Issues
9. Miscellaneous topics related with Lightings

### Lighting Technologies (LIT)

#### Scopes
1. Solid-State Lighting: LED and OLED
2. Fluorescent Light Sources: CCFL and HCFL
3. Flexible Lighting including Backlight Unit for LCD
4. Manufacturing of Lightings and their applications
5. Materials and device structures for Lightings
6. 6 Technologies about the internal or external efficiency enhancement
7. 7 Theories, Simulations and Measurements for Lightings
8. 8 Energy Consumption and Environmental Issues
9. 9 Miscellaneous topics related with Lightings

### WORKSHOP OUTLINES

#### LCT LC Science and Technologies

**Workshop Chair: Hiroyuki Okada (Univ. of Toyama)**

This workshop will cover all aspects of liquid crystal (LC) science and technologies, ranging from fundamental material research to display and other applications. An in-depth discussion on advanced LC displays and novel functionalities of LC materials will be especially emphasized.

**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 including 3D technologies
5. Fabricating, manufacturing, measuring and evaluation techniques
6. High performance displays featuring excellent image quality
7. LC technologies for flexible displays and electronic papers
8. Optical functional devices for non-display applications
9. LC semiconductors and organic electronics
10. LC photonic crystals and lasers

#### FMC FPD Manufacturing, Materials and Components

**Workshop Chair: Tetsuya Miyashita (Tohoku Inst. of Tech.)**

This workshop will cover technology trends and flat panel displays (FPDs) from the perspective of manufacturing, materials, components and systems.

**Topic Areas**
1. Trends in FPD materials, components and systems
2. Technical trends in panel construction
3. Optical materials and systems
4. Color filter materials
5. Lighting materials, components and systems
6. Materials for processes
7. Equipment for processes and measurements
8. Green Factory, 3R (Recycle, Reduce and Reuse)

### AMD Active Matrix Displays

**Workshop Chair: Kazuyumi Azuma (Shimadzu)**

This workshop will cover all aspects of active matrix displays.

**Topic Areas**
1. Active-matrix displays:
   - LCDs, OLEDs, e-papers, FEDs, micro-displays,
   - flexible active-matrix displays
2. Fundamentals, structures, processes, new materials
3. Array & circuit design technologies, addressing schemes, systems
4. Evaluation methods, reliability, mechanical testing
5. Active devices:
   - oxide TFTs, organic TFTs, silicon-related TFTs,
   - CNT, graphene-based devices and other active devices,
   - devices with solution process
6. Touch & other sensors
7. Digital signage and other novel applications

### PDP Plasma Displays

**Workshop Chair: Hiroshi Kajiyama (Tokushima Bunri Univ.)**

This workshop will cover all aspects of science, technologies and applications of plasma display panels.

**Topic Areas**
1. Fundamental mechanisms
2. Panel configurations
3. Materials, components and fabrication processes
4. Driving techniques, signal processing and image quality
   - For high efficacy, high y, high eco-emission, high speed driving, high
definition over 4k x 2k, high performance, etc.
5. Application for PDPs
**PH**  EL Displays and Phosphors

*Workshop Chair: Yoichiro Nakanishi (Shizuoka Univ.)*

This workshop will include a discussion on current topics in EL displays (ELDs), LEDs and phosphors, and will also deal with phosphor application, phosphor screens for CRTs, plasma displays (PDPs), field emission displays (FEDs), lighting source and other emissive devices.

**Topic Areas**
1) Inorganic ELDs (materials, process, devices, drive circuits, etc.)
2) LEDs (materials, devices, panels, lighting, etc.)
3) Phosphors (for CRTs, PDPs, FEDs, VFDs, LEDs, etc.)

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**FED**  Field Emission Display and CRT

*Workshop Chair: Mikio Takai (Osaka Univ.)*

The following topics will be covered in this workshop.

**Topic Areas**
1) Fundamental mechanisms and configurations
2) Modeling and simulation
3) Materials, components and fabrication processes
4) Field emission physics and characteristics
5) Driving technologies and signal processing
6) Picture quality, reliability and lifetime
7) Applications
8) Miscellaneous topics related with field emitters
9) Entire field of CRT

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**OLED**  OLED Displays and Related Technologies

*Workshop Chair: Shigeki Naka (Univ. of Toyama)*

This workshop 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)
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) OLED for lightings
10) Flexible organic devices

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**3D**  3D/Hyper-Realistic Displays and Systems

*Workshop Chair: Sumio Yano (Shimane Univ.)*

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

**Topic Areas**
1) Stereoscopic, autostereoscopic, holographic and other 3D display technologies and systems
2) Immersive, interactive and VR display technologies and systems
3) 3D/hyper-realistic display technologies and systems for Augmented Reality (AR)
4) Digital archive systems using 3D/hyper-realistic displays
5) New applications using 3D/hyper-realistic displays
6) 3D image coding, 2D to 3D conversion, multi-viewpoint representation and other 3D/hyper-realistic image processing
7) Human factor and evaluation of 3D/hyper-realistic display techniques and systems
8) New devices for 3D/hyper-realistic display techniques and systems

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**VHF**  Applied Vision and Human Factors

*Workshop Chair: Taiichiro Kurita (NICT)*

This workshop will cover all aspects of vision, human factors and image quality related to information displays, such as visual requirements, image-quality analysis/improvements, or measurements on displays, as well as new applications of display systems such as augmented reality and their ergonomics.

**Topic Areas**
1) Image quality: analytic models, evaluation methods and metrics
2) Visual requirements for display characteristics: luminance, contrast, gray-scale, color, resolution, frame rate, viewing angle, etc.
3) Analysis and improvement of display image-quality factors, such as dynamic range or spatio-temporal image artifacts
4) Display measurement methods relevant to human factors
5) Display ergonomics and their standards
6) Augmented reality display systems and their ergonomics
7) Legibility and usability issues for text displays or electronic papers
8) Actions and behaviors related to visually displayed information

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**PRJ**  Projection and Large-Area Displays and Their Components

*Workshop Chair: Hideyuki Kanayama (Panasonic)*

This workshop will cover current topics concerning projection and large-area displays and their components.

**Topic Areas**
1) Projectors, pico-projectors, embedded projectors, near-eye displays, head-up displays and projection TVs
2) Micro display and MEMS technologies for projection
3) Optics and video signal processing for projection
4) Optical components (light sources, screens, lenses, mirrors, films, etc.) for projection
5) Algorithm and image processing for large screen displays
6) Digital cinema, 3-D projection and signage systems
7) Large-area display systems and tiled-display systems

*All poster presenters in PRJ are required to give a brief oral presentation of 3 minutes with no discussion time.*
This workshop 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 the brightness and a contrast ratio
2. Novel functional materials and components
3. Driving method
4. Various applications of e-Paper such as e-Books and e-Newspapers
5. Evaluation method taking account of human factors

All poster presenters in EP are required to give a brief oral presentation of 3 minutes with no discussion time.

**Workshop Chair:** Hiroshi Arisawa (Fuji Xerox)
INSTRUCTIONS FOR SUBMISSION OF TECHNICAL SUMMARY

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

http://www.idw.ne.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 should be formatted to A4 page size. Details of the format are described in the sample file available on the website (http://www.idw.ne.jp/authinfo.html). The file should contain one or two pages of text in one column, with additional pages for figures/tables/photographs. The following items should be included:

1. **Paper title**
2. **Names of all authors with their affiliations.** The name of the presenting author should be underlined.
3. **Abstract:** 50 words or less, highlighting the focus of your paper.
4. **Presentation style:** Indicate if you wish to have your paper considered for oral or poster presentation.
5. **Preference of Workshop/Special Topics of Interest:** Indicate the closest matching Workshop/Special Topics of Interest.
6. **The body of the Technical Summary** must contain the following.
   a. **Background and objectives:** Introduce the state of the subject and describe the goal of your work.
   b. **Results:** Describe specific results. Illustrations to highlight your work are encouraged.
   c. **Originality:** Clearly describe what are new and/or emphasized points.
   d. **Impact:** Discuss the significance of your work and compare your findings with previously published works.
   e. **References:** List references covering projects in related areas.
   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.

II. Online Submission

Access http://www.idw.ne.jp/authinfo.html

The submission procedure consists of three steps:

1. **Questions to authors:** Select the number of authors, affiliations and maximum number of affiliations for one author.
2. **Paper title & author information:** Enter the paper title, the names of all authors, all affiliations, information about the presenting author, the WS/Special Topics of Interest name and presentation preference.
   Please understand that the title may be edited by the program committee.
   An acceptance/reject notification will be sent to you via the e-mail address that you provided on the website.
3. **Confirmation & submission:** Please take time to review the paper title and the author information carefully as mistakes cannot be rectified after the file is uploaded. Select a file name of the Technical Summary to submit to our server. When the file is successfully uploaded, a “FINISH” message will appear on the screen and you will also receive a submission confirmation e-mail.

FORMAT OF PRESENTATION

1. **Oral presentations**
   - Oral presentations will usually conform to the 20 minute format including questions and answers. The program committee will determine the duration of presentation.
   - Oral presenters are strongly urged to attend the Author Interviews and Demonstrations after the presentation (AC 100 V power will be made available).
2. **Poster presentations**
   - Poster presentation will conform to a 2.5-3 hour format in front of an individual bullet board.
   - A desk and AC 100 V power will be made available.
3. **Accepted papers** will be assigned to either oral or poster presentation at the discretion of the program committee.

ACCEPTANCE

You will be notified of the results of your Technical Summary review via e-mail. Upon acceptance of the Technical Summary, authors must prepare a camera-ready manuscript to be published in the conference proceedings. The author should use the manuscript template, which will soon be available on the conference website. It will be four pages in length and in a two column format. Acceptance is subject to following conditions:

1. Registration is required before the camera-ready submission for all presenters.
2. All company or government releases must be obtained.
3. The author must be the copyright holder or have written permission from the copyright holder for any material used in the paper.
4. Your submitted paper must not be published in any media including personal websites on the Internet before it is presented at the conference.
5. A camera-ready manuscript must be submitted with a copyright transfer form which is available on the conference website (http://www.idw.ne.jp/copyright.pdf).
6. 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 core time, which will be set in the session.
7. “Short Presentation Session” for poster presenters to be introduced as part of PRJ, EP and DES workshops.
   All poster presenters in PRJ, EP and DES workshops are required to give a brief oral presentation of 3 minutes with no discussion time.

LATE-NEWS PAPERS

A limited number of late-news papers reflecting important new findings or developments may be accepted. Authors are requested to submit a 2-page camera-ready manuscript on A4-sized pages accompanied by an abstract, copyright transfer form and publication authorization. Access the conference website: http://www.idw.ne.jp/authinfo.html

Follow the submission instructions given on the website.

TRAVEL GRANTS

A limited number of travel grants will be available to full-time student presenters attending from outside Japan. Check the travel grant application box of the online submission mentioned above.

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 ’12. The winners will be announced on the IDW website and given a plaque after the conference. We encourage that young researchers win the awards.
Invited Talks

- Behind the Screen of NICT’s 200-in. Automultiscopnic Display
  Shoichiro Iwasawa (NICT)
  Masami Okyudo (Wakayama Univ.)
- Recent Progress on Polymer LED Materials
  Takeshi Yamada (Sumitomo Chem.)
- Inkjet Printing of Single Crystal Films for OTFT
  Hiromi Minemawari (AIST)
- Present Status of Oxide Semiconductors
  Toshio Kamiya (Tokyo Inst. of Tech.)
- High Performance Oxide Semiconductor TFTs for Display Applications
  Joon Seok Park (Samsung Advanced Inst. of Tech.)
- Displaying Contents, Knowledge and Experiences
  Miwako Doi (Toshiba)
- Current Technology Trends in Touch Panel Industry
  Kenji Nakatani (Touchpanel Labs.)
- Efficient Color Reflective Displays for Cost Sensitive Applications
  Gray A. Gibson (HP Labs)
- Electrochromism and Electrochemiluminescence as Novel Display Technology
  Norihsa Kobayashi (Chiba Univ.)
- OLED Display Market –What’s the Killer Application–
  Junzo Masuda (iSuppli Japan)
- Design of Backplanes and Optical Enhancement Structures for Large-Area OLED Lighting Panels
  Chieh-Wei Chen (AU Optronics)
- Active Matrices of Solution-Crystallized High-Mobility Organic TFTs
  Junichi Takeya (Osaka Univ.)
- Light Extraction from OLEDs with Plasmonic Structures
  Takayuki Okamoto (RIKEN)
- Introduction to the Ergonomic Design Guidelines for Flat Panel Display Televisions Issued by a Special Committee of the Japan Ergonomics Society
  Yuzo Hisatake (Japan Display)
- Outline of London 2012 Olympic Games Public Viewing Using UHDTV (Super Hi-Vision)
  Keiji Ishii (NHK)
- Solution-Based Atmospheric Pressure Deposition Method for Oxide TFTs
  Mamoru Furuta (Kochi Univ. of Tech.)

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

IDW/AD’12 OVERSEAS ADVISORS

- Munisamy Anandan (Organic Lighting Tech., USA)
- Janglin Chen (ITRI, Taiwan)
- Norbert Freihauf (Univ. of Stuttgart, Germany)
- Min-Koo Han (Seoul Nat. Univ., Korea)
- Ingrid Heynderickx (Philip Res., The Netherlands)
- Jin Jang (Kyung Hee Univ., Korea)
- Hoi-Sing Kwok (Hong Kong Univ. of S&T, Hong Kong)
- Fan-Chen Luo (AU Optronics, Taiwan)
- Jean-Noël Perbet (Thales Avionics, France)
- Kalluri R. Sarma (Honeywell Int., USA)
- Han-Ping D. Shieh (Nat. Chiao Tung Univ., Taiwan)
- Dietmar Theis (Tech. Univ. Munich, Germany)
- Larry F. Weber (Consultant, USA)

The 19th International Display Workshops
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December 4-7, 2012
Kyoto International Conference Center, Kyoto, Japan
http://www.idw.ne.jp/
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