



# Final Call for Papers



SOCIETY FOR INFORMATION DISPLAY

## IDW '09 - The 16th International Display Workshops

December 9-11, 2009

World Convention Center Summit, Miyazaki, Japan

Sponsored by

The Institute of Image Information and Television Engineers

The Society for Information Display

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

### IDW '09 FEATURES

IDW '09 will integrate thirteen workshops and a topical session in specialized fields playing important roles in information display activities. Each workshop will consist of invited and contributed papers for oral and poster presentations. Detailed discussions on each specialized R&D update will be provided. 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.

#### Highlights of IDW '09

#### CONFERENCE SITE

The World Convention Center Summit is adjacent to the Phoenix Seagaia Resort in Miyazaki, in the South Eastern corner of the island of Kyushu (the southernmost of the four main islands of Japan). Miyazaki has a warm climate throughout the year, with the temperate currents from the Pacific Ocean giving it a relaxed tropical environment. From ancient times, the long sweeps of its scenic coastline have been well-known as the most popular destination for honeymooners in Japan. A mild climate attracts various sports lovers, golfers, surfers, swimmers and other field game players throughout the year. Miyazaki's numerous charms make it an ideal convention site for visitors.

There are many flights (domestic and international) to Miyazaki Airport, which is connected with Miyazaki's downtown area by train (10 minutes) or airport shuttle bus (25 minutes).

For more information please refer to the following websites.

World Convention Center Summit:

<http://www.seagaia.co.jp/english/conference/>

Miyazaki Prefecture:

<http://www.kanko-miyazaki.jp/Language/english/>

#### Plenary Session:

*"Promising New Technologies and Markets"*

#### Keynote Addresses

- Paradigm Shift in Books and Newspaper by Electronic Media

Susumu Furukawa (Keio Univ.)

- Towards 3D Display and Multisensory Interfaces Based on Human Perceptual and Cognitive Mechanisms

Hiroshi Ando (NICT)

#### Invited Addresses

- Trends and Futures of e-Paper Technologies

Jong Min Kim (Samsung Elect.)

- Intelligent Display Systems for Future Automobiles

Toshiyasu Asai (Denso)

[The titles are tentative.]

#### Topical Session: "Flexible Displays"

Paper submissions from various fields are expected.

### DEADLINES AND KEY DATES

Submission of Technical Summary ----- June 26, 2009

Acceptance Notification/Author's Kit available on the website

----- July 23, 2009

Submission of Camera-ready Manuscript & Abstract

----- September 9, 2009

Submission of Late-News Paper ----- September 25, 2009

Early Bird Registration Discount ----- November 6, 2009

### LANGUAGE

The official language is English.

### IDW Best Paper Award and IDW Outstanding Poster Paper Award

The awards committee of IDW will select the most outstanding papers from those presented at IDW '09. The award winners will be announced on the IDW website and given a plaque after the conference.

### EXHIBITION

The IDW '09 Exhibition covers materials, components, manufacturing and measuring equipment, software systems and other related products for display devices.

To make an exhibition, please contact the IDW '09 Secretariat.

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

### IDW '09 CHAIRS

General Chair

Y. Yamamoto (Sharp)

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Program Chair

M. Omodani (Tokai Univ.)

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The Advance Program will be available in September 2009, including REGISTRATION and HOTEL INFORMATION.

# WORKSHOP OUTLINES

**LCT**

## Workshop on LC Science and Technologies

*Workshop Chair: H. Fujikake (NHK)*

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 LC functionality will be especially emphasized.

### *Topic Areas*

- 1) Physicochemical and thermal 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 simulation
- 5) Fabricating, manufacturing, measuring and evaluation techniques
- 6) High performance displays featuring excellent image quality
- 7) LC technologies for flexible displays and electronic paper
- 8) Optical functional devices for non-display applications
- 9) LC semiconductors and organic electronics
- 10) LC photonic crystals and lasers

**PDP**

## Workshop on Plasma Displays

*Workshop Chair: H. Kajiyama (Hiroshima 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

**AMD**

## Workshop on Active Matrix Displays

*Workshop Chair: K. Takatori (NEC LCD Technologies)*

This workshop will cover all aspects of active matrix displays.

### *Topic Areas*

- 1) Fundamentals, structures, processes, new materials
- 2) Array & circuit design technologies, addressing schemes, systems
- 3) Evaluation methods, reliability, mechanical testing
- 4) Active devices:
  - a-Si TFTs, poly-Si TFTs,  $\mu$ -c-Si TFTs, oxide TFTs
  - organic TFTs, Active devices based on nanotechnology
- 5) Active-matrix displays:
  - LCDs, OLEDs, e-papers, FEDs, micro-displays
  - flexible active-matrix displays
- 6) Touch & other sensors built into cells
- 7) Digital signage and other novel applications

**PH**

## Workshop on EL Displays and Phosphors

*Workshop Chair: Y. 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) and other emissive displays.

### *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.)

**FMC**

## Workshop on FPD Manufacturing, Materials and Components

*Workshop Chair: R. Yamaguchi (Akita Univ.)*

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) Ecology, 3R (Recycle, Reduce and Reuse)
- 9) Image sensors, imaging devices

**FED**

## Workshop on Field Emission Display and CRT

*Workshop Chair: M. 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

**OLED****Workshop on  
Organic LED Displays***Workshop Chair: T. Inoue (TDK)*

This workshop will cover all aspects of science and technologies of organic LED displays, ranging from materials research and basic device physics to display and other applications.

*Topic Areas*

- 1) Material (Dyes and Polymers) for organic LED displays
- 2) Problems related with electrodes and interfaces
- 3) Device physics and efficiency
- 4) Display applications
- 5) Fabrication processes
- 6) Active and passive matrix circuits and systems
- 7) Reliability and lifetime
- 8) Miscellaneous topics related with organic LED displays
- 9) Fundamental mechanisms and configurations of organic LEDs and organic TFTs
- 10) Organic TFTs for organic LED displays
- 11) Light-emitting transistors
- 12) Organic LED for lightings
- 13) Flexible OLED

**3D****Workshop on  
3D/Hyper-Realistic Displays  
and Systems***Workshop Chair: I. Yuyama (Utsunomiya Univ.)*

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

*Topic Areas*

- 1) Stereoscopic, holographic and other 3D display technologies and systems
- 2) Immersive, interactive and VR display technologies and systems
- 3) New applications using 3D/hyper-realistic displays
- 4) 3D image coding, 2D to 3D conversion, multi-viewpoint representation and other 3D/hyper-realistic image processing
- 5) Human factor and evaluation of 3D/hyper-realistic display techniques and systems

**VHF****Workshop on Applied  
Vision and Human Factors***Workshop Chair: Y. Shimodaira (Shizuoka Univ.)*

This workshop will cover all aspects of vision, human factors and image quality related with displays, such as the followings.

*Topic Areas*

- 1) Display image quality: models, metrics and evaluation methods
- 2) Characteristic display requirements regarding image quality: luminance, contrast, gray-scale, color, resolution, sharpness, viewing angle, etc.
- 3) Spatio-temporal image artifacts on displays and their improvements
- 4) Display measurements relevant to human factors
- 5) Display ergonomics and their standards
- 6) Legibility and usability issues for text displays or electronic papers
- 7) Actions and behaviors that are consequences of visually displayed information
- 8) Visual quality and optometric factors in virtual displays

**LAD****Workshop on Projection and  
Large-Area Displays  
and Their Components***Workshop Chair: K. Takeda (SEIKO EPSON)*

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

*Topic Areas*

- 1) Projectors, embedded projectors and projection TVs
- 2) Microdisplay and MEMS technologies for projection
- 3) Optics and video signal processing for projection
- 4) Optical components (light sources, illumination, screens, lenses, etc.) for projection
- 5) Algorithm and image processing for large screen displays
- 6) Digital cinema
- 7) Large-area display systems

**EP****Workshop on  
Electronic Paper***Workshop Chair: A. Suzuki (Ricoh)*

This workshop will cover all aspects of electronic paper, rewritable paper, and paper-like display.

*Topic Areas*

- 1) Display methods for Electronic Paper
- 2) Materials, components, and fabrication processes
- 3) Driving techniques
- 4) Human-interface on Electronic Paper
- 5) Discussion on concepts of Electronic Paper
- 6) Electronic book and Electronic newspaper
- 7) Other applications of Electronic Paper

**MEMS****Workshop on  
MEMS for Future Displays  
and Related Electron Devices***Workshop Chair: M. Nakamoto (Shizuoka Univ.)*

This workshop 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 (NEMS)
- 2) Optical MEMS such as optical scanners, optical switches, optical mirrors, optical space modulators, optical filters, etc.
- 3) Sensors and actuators for electromagnetic wave, infrared rays, ultraviolet rays, X-rays, visible rays, supersonic wave, hearing, touching, smell, taste, etc.
- 4) Materials, components and fabrication processes
- 5) Fundamental mechanisms and configurations
- 6) Miscellaneous topics related to MEMS displays

**DES**

## Workshop on Display Electronic Systems

*Workshop Chair: H. Okumura (Toshiba)*

This workshop will cover all aspects of electronic systems including hardware as well as software on all kinds of displays.

### Topic Areas

- 1) Video processing including deinterlace, scaling, and elimination of artifacts and blur
- 2) High quality color reproduction including high dynamic range and wide color gamut
- 3) High-fidelity systems such as professional use and master monitors
- 4) Exploration of future standards such as post-HDTV
- 5) Video interface technologies including data transmission and storage
- 6) Novel display systems including mobile/auto applications
- 7) Cooperative operations of functional components
- 8) Circuit technologies including high speed and low power driving

**FLX**

## Topical Session on Flexible Displays

*Organizing Workshops: LCT, AMD, FMC, OLED, EP*

This session will cover technologies related to flexible displays in a wide range of fields from material science to practical panels.

### Topic Areas

- 1) Materials and components such as plastics for substrates and organics for TFT
- 2) Fabrication processes such as encapsulation
- 3) Practical panels including EP, LC and OLED
- 4) Analysis of device performance

### Invited Talks

- **Liquid Crystals for TFT Applications**  
Jun-ichi Hanna (Tokyo Inst. of Tech)
- **Liquid Crystal Lens and Its Application to Imaging Devices**  
Susumu Sato and Mao Ye (Akita Res. Inst. of Advanced Tech.)
- **Embed UV-Vis-to-NIR Nano-Si Photonic Sensor Electro-Optical Transport Engineering, and Integrated in LCD as Multi-Function Touch-Input Display**  
An-Thung Cho (AU Optronics)
- **Development of ITO Ink for Ink-Jet Printing: Evaluation of the Novel Ink**  
Osamu Yamamoto (Akita Univ.)
- **360-degree Ray Acquisition and Reconstruction System**  
Tomohiro Yendo (Nagoya Univ.)
- **3D-TV: Are Two Images Enough? How Depth Maps Can Enhance the 3D Experience**  
Carlos Vazquez (CRC)
- **DLP Pico Technology Update**  
Jeffrey Dennis (Texas Instrs.)
- **Bright Color Electronic Paper Technology and Applications**  
Kars-Michiel H Lenssen (Philips Res.)
- **Challenge to Color Electronic Paper Based on Particle Control Technologies**  
Takashi Kitamura (Chiba Univ.)
- **Super-Resolution Technology for TV**  
Takashi Ida (Toshiba)

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

### IDW '09 OVERSEAS ADVISORS

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|--|--|
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# PAPER SUBMISSION

## INSTRUCTIONS FOR SUBMISSION OF TECHNICAL SUMMARY

Submit a Technical Summary via the conference website;

<http://idw.ee.uec.ac.jp/authinfo.html>

in PDF or Microsoft Word.

Follow the submission instructions given on the website and shown below. If you have any difficulties with online submission, please send a Paper Application Form and a Technical Summary by June 26, 2009, to the IDW '09 Secretariat. The Paper Application Form is available on the conference website. The Technical Summary will be used only for evaluation and will not be published.

### I. Technical Summary Guidelines

The file should be formatted to A4 page size. A sample file is available on the website. Files should contain one or two pages of text in **one column**, with additional pages for figures/tables/photographs. It should include the following items:

- (1) **Paper title**
- (2) **Names of all authors with their affiliations:** The name of the presenting author should be underlined.
- (3) **Abstract:** 35 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) **Workshop/Topical Session:** Indicate the closest matching workshop/topical session.
- (6) **Body of the Technical Summary contains:**
  - (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 on similar work, explain how the present material differs.

### II. Online Submission

Access <http://idw.ee.uec.ac.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:** Input the paper title, names of all authors, all affiliations, and presenting author information. 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 which you indicated on the web.**
- (3) **Confirmation & Submission:** Please take time to review the paper title and the author information carefully as mistakes cannot be rectified after upload.

Select a file type and 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 conform to a 20 minute format including questions and answers.
  - The presenters are strongly urged to attend the Author Interviews.
- (2) **Poster Session presentations**
  - A core time will be set during session in IDW '09.
  - At least one of the authors must stand by their posters during their core time.
- (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 by July 23, 2009. Upon acceptance of the Technical Summary, authors must prepare a camera-ready manuscript to be published in the conference proceedings. The template of the manuscript 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) An advance registration is required for all presenters.
- (2) All company or government releases must be obtained.
- (3) Your paper must not use copyrighted materials unless you have the express permission of the author or copyright holder.
- (4) Your paper submitted to IDW '09 must not be published nor placed on the Internet before it is presented at the conference.
- (5) A camera-ready manuscript must be submitted with a copyright transfer form.
- (6) You must give a presentation at the conference.

## 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 no later than September 25, 2009. Access to the conference website: <http://idw.ee.uec.ac.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.

## MAILING

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If you have any difficulties with the online submission, please contact the IDW '09 Secretariat.



**IDW '09**



**The 16th International Display Workshops**

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