IDW '09
THE 16TH INTERNATIONAL DISPLAY WORKSHOPS

Workshops on
• LC Science and Technologies
• Active Matrix Displays
• FPD Manufacturing, Materials and Components
• Plasma Displays
• EL Displays and Phosphors
• Field Emission Display and CRT
• Organic LED Displays
• 3D/Hyper-Realistic Displays and Systems
• Applied Vision and Human Factors
• Projection and Large-Area Displays and Their Components
• Electronic Paper
• MEMS for Future Displays and Related Electron Devices
• Display Electronic Systems

Topical Sessions on
• Flexible Displays
• Input Technologies

Advance Program

World Convention Center Summit
Miyazaki, Japan
December 9(Wed) – 11(Fri), 2009
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Scientific and technological advances in research and development on information displays can be found at the 16th International Display Workshops (IDW ’09). Features of the IDW ’09 include the integration of the following thirteen workshops as well as two topical sessions focusing on recent progress of flexible displays and Image Input technologies.

Workshops on
- LC Science and Technologies
- Active Matrix Displays
- FPD Manufacturing, Materials and Components
- Plasma Displays
- EL Displays and Phosphors
- Field Emission Display and CRT
- Organic LED Displays
- 3D/Hyper-Realistic Displays and Systems
- Applied Vision and Human Factors
- Projection and Large-Area Displays, and Their Components
- Electronic Paper
- MEMS for Future Displays and Related Electron Devices
- Display Electronic Systems

Topical Sessions on
- Flexible Displays
- Input Technologies

The three-day conference will feature 510 papers, including 2 keynote addresses, 2 invited addresses, 182 oral presentations, and 226 poster presentations, as well as the late-news papers. Following keynote and invited addresses focused on “Promising New Technologies and Markets” in the Wednesday morning, presentations will begin and continue in seven parallel sessions through Friday. Poster sessions and author interviews will enable participants to discuss topics in detail. IDW ’09 will also present “IDW Best Paper Awards” and “IDW Outstanding Poster Paper Awards” based on paper originality and technical significance to information displays. Exhibits by universities and display industry-related businesses will also be featured from Wednesday to Friday in parallel with workshops. IDW ’09 should be of interest to not only researchers and engineers, but also managers of companies and institutions in the display community.

Workshop on LC Science and Technologies (LCT)
Recent advances in LC materials and device technologies are presented. The sessions cover from fundamental studies to recent development in LCD technologies. New LC materials & modes including blue phase display, LC alignment processes, display measurement, fast-response LCDs, high performance LCDs and emerging new applications are discussed.

Workshop on Active Matrix Displays (AMD)
Full of opportunities to stimulate your intellectual curiosity with interesting invited talks and contributed papers, this workshop covers various applications such as LCD and OLED for TV, flexible displays and novel applications, etc. It also features TFT technologies including oxide-semiconductor TFT, organic TFT, poly-Si TFT, µc-Si, and so on. Join us in discussions of the latest progress in active-matrix displays and TFT technologies.
Workshop on FPD Manufacturing, Materials and Components (FMC)
The FMC workshop covers the recent developments and achievements in the field of flat panel displays. The cutting-edge technologies of the optical films, color filters, LCD backlighting systems, optical components, manufacturing technologies, and measurement systems are highlighted. Recycling of FPD materials and environmental safety technologies are included as highlighted topics.

Workshop on Plasma Displays (PDP)
This year the PDP workshop provides even larger number of papers related to protective layers. (It seems that we are creating problems rather than solving.) New materials of protecting layers having high gamma values are introduced, that may have a possibility of replacing the existing MgO. One of the techniques introduced at the PDP session is an “all-in-vacuum process,” with which a SrCaO layer is formed without exposing the layer to ambient air, resulting in higher lumiance. Deeper studies are introduced with regards to exo-electron emission from MgO. In order to understand completely the functioning of exo-electrons, however, we may need further more years. The PDP workshop will have at least two invited papers; one is on 2m x 3m film displays using plasma tube arrays, and the other is on analysis of driving 4K2K, 103”-diagonal PDPs which have intrinsic stray capacities and inductances. A special note is that the workshop is organizing a session “Essentials of PDP Physics,” in which two 40-minute lectures are arranged, providing extensive discussion periods.

Workshop on EL Displays and Phosphors (PH)
This workshop covers the latest R&D achievements in inorganic ELDs, phosphors for emissive displays and solid-state illumination as well as LEDs. The workshop consists of invited talks, contributed papers and poster papers. These will present phosphors for LEDs, PDPs, ELDs, FEDs, CCFLs and computational approaches for phosphors including interesting topics such as luminescent mechanism and synthesis techniques for phosphors.

Workshop on Field Emission Display and CRT (FED)
This workshop covers the entire field of CRT and field emission display technologies. Recent progress in various field emission displays equipped with carbon nanotube (CNT) field emitter arrays and MIM-Cathode-Array are presented. Field emission characteristics and various field emitter materials, such as CNTs, ZnO, transition metal nitride and nanocrystalline silicon, are also discussed.

Workshop on Organic LED Displays (OLED)
This workshop includes recent developments in OLED materials, devices, display systems, OLED lighting and evaluation methods. OLED technologies based on new full-color patterning methods are reported on technologies facilitating the use of OLED in mobile and TV applications. Device architecture for highly efficient emissions and novel materials supporting these device technologies are also presented.

Workshop on 3D/Hyper-Realistic Displays and Systems (3D)
This workshop focuses on recent progress in 3D, hyper-realistic image system and related visual sciences. It also covers 3D acquisition, measurement, standardization, holography, high-fidelity color reproduction. Invited talks in this workshop include topics from the forefront of 3D imaging technologies and recent research into advanced display systems.
Workshop on Applied Vision and Human Factors (VHF)
This workshop provides a forum for discussing the latest academic and industrial R&D in the field of applied vision and human factors associated with display technology. These include methods for improved color reproduction, contrast enhancement, dynamic performance and assessment and improvement of perceived quality of images. This workshop constitutes a unique opportunity to interact with world-renowned experts in the field and discuss the latest advances with them.

Workshop on Projection and Large-Area Displays, and Their Components (LAD)
The hottest technologies for projection displays will make this workshop exciting. Emerging technologies such as pico projectors with LED and laser light sources will be highlighted. Ongoing progress in the fields of digital cinema, digital signage, light sources, light valves, screens and optical systems will be discussed as well.

Workshop on Electronic Paper (EP)
This workshop focuses on current topics in electronic paper including rewritable paper, paper-like displays and flexible displays. Various novel technologies in electrophoretic, liquid crystal, electrowetting, electrochromic, liquid powder and toner display systems will be reported on. Systems, devices, materials, human factors and applications in this field are expected to be discussed.

Workshop on MEMS for Future Displays and Related Electron Devices (MEMS)
This 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 horizons of display and imaging technologies into cutting-edge technologies. Research areas such as materials, basic physics and fabrication process 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 in this field are invited from top research institutions around the world. Invited speakers are from Ecole Polytech., MIT, QD Vision (MIT’s venture company), Univ. of Cambridge, Alces Technology, Kyung Hee Univ., Samsung, Tohoku Univ., Univ. of Hyogo, Univ. of Tokyo, NIMS and Ritsumeikan Univ. Together with excellent contributed papers, this workshop invites participants who wish to open a new field of displays, imaging devices and emerging devices.

Workshop on Display Electronic Systems (DES)
This workshop covers all aspects of display systems in relation to electronics of video data processing, interface technologies, cooperative operations between display components such as cells and backlights, in combinations with other input/output devices, applications to the new arena. In addition, the systems for a wide and high dynamic range of color reproduction, high-fidelity systems for professional use, and exploration of future standards such as post-HDTV are specially focused.

Topical Session on Flexible Displays (FLX)
Recently, there is much attention on flexible display technologies. The technologies are spread in a wide range of fields from material science to practical applications. The hottest sessions cover all aspects of flexible display technologies including electronic paper, flexible flat panel display, display materials, TFT and substrate technologies, which are related across LCT, AMD, FMC, OLED and EP workshops.
Topical Session on Input Technologies (INP)
The new topical session, INP, covers all aspects of input technologies on materials, devices and systems, in which we include not only recently attention-catching touch panels but also imaging sensor technologies. INP is expected to open new technology fields by focusing the combination of input technologies and display technologies. INP sessions are held by the related workshops of DES, AMD, FMC and EP. This year’s INP will be composed of 3 sessions, including attractive invited papers such as on the trend of CMOS image sensors and on the retinal sensing devices.

IDW Best Paper Award and IDW Outstanding Poster Paper Award
IDW will present “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, which will be held from December 9 through December 11, covers materials, components, manufacturing and measuring equipments, software systems and other related products for display devices. Please join-in and enjoy discussions at exhibitors’ booths.

- December 9: 12:00 – 18:00
- December 10: 10:00 – 18:00
- December 11: 10:00 – 14:00

IDW Best Paper Award
This award will go to the most outstanding paper selected from those presented at IDW '09. The 2009 award winners will be announced on the IDW website: http://www.idw.ne.jp/award.html

IDW Outstanding Poster Paper Award
This award will go to the most outstanding paper selected from those presented at IDW '09 poster presentation. The 2009 award winners will be announced on the IDW website: http://www.idw.ne.jp/award.html
SPONSORSHIP
IDW '09 is sponsored by the Institute of Image Information and Television Engineers (ITE) and the Society for Information Display (SID).

CONFERENCE SITE
World Convention Center Summit
Hamayama, Yamazaki-cho, Miyazaki, Miyazaki 880-8545, Japan

ON-SITE SECRETARIAT
Telephone and fax machines for IDW '09 use will be temporarily set up in the secretariat room (ORCHARD Room, 2F) at the World Convention Center Summit (December 8-11).
Phone/Fax: +81-985-21-1105

BANQUET
A buffet-style banquet will be held on December 9 from 19:30 to 21:30 in the TENZUI Room (4F). As the number of tickets is limited, you are urged to make an advance reservation through the website.

EVENING GET-TOGETHER WITH WINE
A get-together will be held on December 8 from 18:00 to 20:00 in the FOUNTAIN Room (2F). Wine (Sponsored by Merck Ltd., Japan) will be served to participants with a relaxed atmosphere for informal discussion.

REGISTRATION
Registration is available in advance and also on-site. However, on-site registrants may not be able to obtain books or a memory, if there is an unexpectedly large number of on-site registrations. Advance registration is strongly recommended.

Registration Fees
The registration fee for IDW '09 includes admission to the conference and CD-ROM of the proceedings. The proceedings may also be purchased in book format, on a USB flash drive or SD card, if you have registered and paid by November 6 (Japan Standard Time). Details are shown in the pullout.

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*ASO: Academic Supporting Organizations
(See p. 11 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 membership fee will be subsidized by IDW '09 committee.
See http://www.idw.ne.jp/ for more information.

***Student ID is required.

Please note that the reduced registration fee must be paid by November 6. The full fee will be charged for payments made later than November 6. Also note that the number of banquet tickets to register on site is limited.
For additional sets of the proceedings (book and CD-ROM)  
At the conference site  ¥ 8,000  
Airmail after the conference  ¥ 15,000  
Domestic mail after the conference  ¥ 10,000  

*Additional sets of Book and CD-ROM can be selected only by those applying with payment by November 6.

**Payment**

Three ways are provided for registration.

(1) **e-Registration**  
Access the following URL.  
http://www.idw.ne.jp/regist.html  
e-Registration will be accepted until November 27, 2009.

(2) **Mail or Fax Registration**  
Complete the registration form (download from the website) and send it to the secretariat together with all necessary payments no later than November 27, 2009.

IDW '09 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@bilingualgroup.co.jp  

The registration fee should be remitted by one of the following methods.  
1. Credit Card (VISA or MasterCard)  
2. Bank Transfer to:  
   Bank: Bank of Tokyo-Mitsubishi UFJ  
   (Swift Code: BOTKJPJT)  
   Branch: Ichigaya Branch (Branch No. 14)  
   Account No.: 1474095 (Ordinary Account)  
   Account: IDW  
   Please attach a copy of the bank receipt with the registration form to avoid any confusion.

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 be open:  
December 8 (Tue.)  17:00 – 20:00  
December 9 (Wed.)  8:00 – 18:00  
December 10 (Thu.)  8:00 – 18:00  
December 11 (Fri.)  8:00 – 13:00  

The on-site registration fee will be payable by:  
1. Cash (JAPANESE YEN only)  
2. Credit Card (VISA or MasterCard only)  
Bank transfer, bank check, or personal/traveler’s checks are not accepted. Payment by cash is recommended.

**Cancellation Policy**

Refunds for registration, banquet, additional sets of proceedings etc. will be made upon receipt by IDW ‘09 secretariat of written cancellation by **November 6**. For cancellations received after November 6 or no-shows, refunds will not be made. However, after IDW ‘09 closes, a set of the proceedings will be sent to the registrants who have paid the registration fees. If it becomes difficult to hold IDW ‘09 due to infectious disease and other unavoidable factors, we will substitute an IDW with the mail delivery of the ‘09 proceedings at a later date to all those who have registered for participation.
INQUIRIES
IDW '09 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@bilingualgroup.co.jp

ACADEMIC SUPPORTING ORGANIZATIONS
The Chemical Society of Japan
The Electrochemical Society of Japan (ECSJ)
The Illuminating Engineering Institute of Japan
The Imaging Society of Japan
The Institute of Electrical Engineers of Japan
The Institute of Electronics, Information and Communication Engineers (IEICE)
The Institute of Image Electronics Engineers of Japan
Japan Ergonomics Society (JES)
The Japanese Liquid Crystal Society (JLCS)
The Japan Society of Applied Physics
The Virtual Reality Society of Japan
The Society of Polymer Science, Japan

FUNDS
Funds for the conference are furnished in part by the following organizations:
• Grant-in-Aid for Scientific Research (KAKENHI: 2062005) from MEXT
• Miyazaki Visitors and Convention Bureau (Miyazaki Prefectural Government)
• National Institute of Information and Communications Technology International Exchange Program
• The Asahi Glass Foundation
• The Telecommunications Advancement Foundation

Please keep an eye on the website (http://www.idw.ne.jp/) for latest information.

Final Program
The final program of IDW '09 will be available on the website (http://www.idw.ne.jp/) from the middle of November.
ACCOMMODATIONS

JTB Corp. (JTB) 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 Tokyo Metropolitan Corp.
Corporate Sales Office Yokohama
Yokohama Convention Center

Phone: +81-45-316-4602 Fax: +81-45-316-5701
Office Hours: 9:30-17:30 (Weekdays only)
E-mail: jtb_convention@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 a 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.

JAPAN RAIL PASS AND JR KYUSHU RAIL PASS

Japan Rail (JR) provides the following economical passes for some overseas travelers. Because purchase in Japan and usage conditions are restricted, please contact your travel agency prior to your trip.

(1) The JAPAN RAIL PASS is the most economical way to travel throughout Japan by rail and JR buses.

(2) The JR KYUSHU RAIL PASS is an economical and flexible rail pass to travel throughout Kyushu island.

Japan Rail Pass: http://www.japanrailpass.net/
JR Kyushu Rail Pass: http://www.jrkyushu.co.jp/english/kyushu_railpass.html

CLIMATE

The average temperature in Miyazaki during the period is around 11°C, with temperatures of 15°C in the daytime and 6°C at night on average.

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Late-News Papers

Due September 25, 2009
Submit a two-page camera-ready manuscript via IDW website:
http://www.idw.ne.jp/latenews.html
MIYAZAKI CITY

Miyazaki city is located in the South Eastern corner of the island of Kyushu (the Southernmost of the four main islands of Japan). The city has a total area of approximately 596 square kilometers, and a population of 368,735 people. In the center of a city, the vast stretch of the Miyazaki Plain is formed by the eastward-flowing Oyodo River, which flows into the sea of Hyuga from the Kyushu mountain range. The eastern coastline has a series of white sand and green pine zones, and the twisting coastline lies against the backdrop of overhanging mountains and Aoshima Island. The city has a year-round warm climate with a relaxed tropical environment due to the influence of warm currents from the Pacific Ocean. Miyazaki plays a prominent role in Japanese mythology, as it is believed to be the home of the Gods who created Japan. There are many traditional places of Hyuga mythology in the city such as the Miyazaki Shrine, Aoshima Shrine, Eda Shrine and Misogi Pond.

In Miyazaki city, many shops offer a variety of regional specialties from Miyazaki Prefecture. Jidori-momoyaki is a delicious char-grilled chicken using only all-natural Miyazaki chickens. Lettuce-maki is sushi rolls of Miyazaki origin, which are made by rolling together shrimp, lettuce and mayonnaise in rice and seaweed. Shochu is a very popular alcoholic drink made from sweet potato, buckwheat, wheat or corn. There are many fresh and sweet fruits, such as Hyuganatu Orange, Mango and Kinkan Orange. In the downtown area, the main transportation facilities are buses and taxis. The major bus routes start from the JR Miyazaki station or the Miyakoh City bus center, which is located near the JR Minami-Miyazaki station.

PLACES OF INTEREST

The Nichinan Coastline

From ancient times the Nichinan Coastline was known for its long sweep of scenic coastlines, which are famed as a most popular destination for honeymooners. As you drive along this breathtaking coastal road with the blue sky and horizon stretching out before you, you'll realize you really are in a tropical paradise. Take some time to stop and smell the flowers at the Horikiri Pass, and view the "Devil's Washboard" rocks of Aoshima Island. Aoshima Island is a small island with a circumference of only 1.5 km. It is surrounded by a rock formation, created by the crashing waves, known as the "Devil's Washboard". There is also a shrine on the Island that attracts tourists from home and abroad.

Phoenix Seagaia Resort

Phoenix Seagaia Resort is Japan's first large-scale international resort facilities on the Hitotsuba Coast. The land area consists of more than 700 hectares, complete with meeting space for up to 5000 persons, 4 comfortable resort hotels, a golf course, tennis court and even a natural hot spring. In the very center of the international Phoenix Seagaia Resort, a 154-meter tower skyscraper hotel dominates the landscape (Sheraton Grande Ocean Resort). You can enjoy a magnificent view of the Pacific Ocean from all rooms.

Miyazaki Pref. Museum

Miyazaki Pref. Museum was established in 1951. This is a place where you can experience the history and beauty of Miyazaki. In the grounds, a replica of an ordinary 19th Century style house has been constructed.
Aya Town
Aya Town is bordered on the west by Miyazaki city, 20 km away from the city center. This green mountain town has Japan’s largest evergreen forest, which consists of evergreen trees such as oaks and camellias. Shoyo-Otsuribashi, which crosses an evergreen-gulch is one of the longest suspension bridges in Japan, 142-meter high and 250-meter long. Shusen-no-Mori is a theme park based on traditional craft and brewing; you can try your hand at traditional Japanese industrial arts, and sample shochu, wine, and local beer.

MIYAZAKI INFORMATION
For more information please refer to the following web sites.
Miyazaki Prefecture:
  http://www.kanko-miyazaki.jp/Language/english/
Phoenix Seagaia Resort:
  http://www.seagaia.co.jp/english/guidance/

EVENING GET-TOGETHER WITH WINE
Tuesday, December 8, 2009
18:00–20:00
Room “FOUNTAIN” (2F)
World Convention Center Summit
(Sponsored by Merck Ltd., Japan)
See page 9 for details

BANQUET
Wednesday, December 9, 2009
19:30–21:30
Room “TENZUI” (4F)
World Convention Center Summit
See page 9 for details
Access to Conference Site

Kansai Int'l Airport (KIX)
- Bus
  - ¥ 1,900 / 75 min.

Narita Int'l Airport (NRT)
- Bus
  - ¥ 3,000 / 75 min.

Osaka Int'l Airport Itami (ITM)
- Flight 65 min.
  - 10 flights / day

Haneda Int'l Airport (HND)
- Flight 90 min.
  - 16 flights / day

Fukuoka Airport (FUK)
- Int'l Flights: Seoul, Shanghai, Taipei, Dalian, Hongkong, Beijing, Busan etc.
- Flight 40 min.
  - 7 flights / day

Central Japan Int'l Airport Centrair (NGO)
- Many Int'l Flights from Asia, Europe, America etc.
- Flight 75 min.
  - 3 flights / day

Miyazaki Airport (KMI)
- Int'l Flights: Seoul, Taipei
- Bus
  - ¥ 430 / 26 min.
- JR Line
  - ¥ 340 / 10 min.
- Shuttle bus*
- Bus
  - ¥ 830 / 32 min.
- Taxi
  - ¥ 4,500 / 20 min.

JR Miyazaki Station
- Taxi
  - ¥ 2,500
  - 15 min.
- Bus
  - ¥ 500 / 25 min.

3 Cottage Himuka
4 Luxze Hitotsuba

World Convention Center Summit, Phoenix Seagaia Resort

*Schedule will be announced on http://www.idw.ne.jp/ in November. Information of this page may be changed. Please confirm the details in each company.

(as of July 1, 2009)
Buses from Miyazaki Airport
To Conference Site
Local Bus: Gate-4

Buses from Miyazaki Downtown (Tachibana-dori)
To Conference Site  To Miyazaki Airport
No. 16, No. 18

Buses from Conference Site
To Miyazaki Downtown  To Miyazaki Airport
No. 16, No. 18

Chartered buses between the Airport and the Conference Site will be made available by the IDW Committee.

Hotel List (Phone Number)
--- Phoenix Seagaia Resort ---
① Sheraton Grande Ocean Resort (+81-985-21-1133)
② Sun Hotel Phoenix (+81-985-21-1313)
③ Cottage Himuka (+81-985-21-1333)
④ Luxze Hitotsuba (+81-985-21-1333)

There are free shuttle buses running in the Seagaia Resort.

--- Miyazaki Downtown ---
There are several hotels along Tachibana-dori street, but the hotels in Seagaia Resort are strongly recommended because of easy access to the conference site.
Plenary Sessions
“Promising New Technologies and Markets”

Wednesday, December 9

9:30 - 9:40 TENZUI

Opening

Master of Ceremony: K. Betsui, Executive Chair, Hitachi, Japan

Opening Remarks
9:30

Y. Yamamoto, General Chair, Sharp, Japan
M. Omodani, Program Chair, Tokai Univ., Japan

9:40 - 11:00 TENZUI

Keynote Addresses

Co-Chairs: M. Omodani, Program Chair, Tokai Univ., Japan
Y. Yamamoto, General Chair, Sharp, Japan

Keynote Address - 1  Paradigm Shift in Books and Newspaper by Electronic Media
9:40
S. Furukawa
Keio Univ., Japan

Keynote Address - 2  Towards 3D Display and Multisensory Interfaces Based on Human Perceptual and Cognitive Mechanisms
10:20
H. Ando
NICT, Japan

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

11:10 - 12:10 TENZUI

Invited Addresses

Co-Chairs: R. Hattori, Program Vice-Chair, Kyushu Univ., Japan
H. Mori, Program Vice-Chair, FUJIFILM, Japan

Invited Address - 1  Trends and Future of e-Paper Technologies
11:10
J. M. Kim
Samsung Elect., Korea

Invited Address - 2  Intelligent Display Systems for Future Automobiles
11:40
S. Kurikawa
Denso, Japan
**Workshop on LC Science and Technologies**

Wednesday, December 9

**Poster LCTp1: Novel Materials**

**LCTp1 - 1**
Abnormal Molecular Orientation of Chemically Linked Rod - Disc Mesogenic LC under Vertical Electric Field

J. J. Ho, H. K. Su, C. Mina, K. M. Su, J. K.-Un, L. S. Hee
Chonbuk Nat. Univ., Korea

**LCTp1 - 2**
The Effect of Aligned LC in the Electrolyte for Efficiency Improvement on Dye-Sensitized Solar Cell

H. Kim, G.-D. Lee
Dong-A Univ., Korea

**LCTp1 - 3**
Bistable Cholesteric LCD with Self-Assembled Nano-Particles

Y. Hung, C. Huang, S. Jeng*, S. Hwang
Nat. United Univ., Taiwan
*Nat. Kaohsiung Univ. of Appl. Sci., Taiwan

**LCTp1 - 4**
Effect of CNTs on the Electro-Optical Properties of the VA LC Cells

C.-Y. Huang, P.-Y. Chiou, Y.-J. Huang
Nat. Changhua Univ. of Education, Taiwan

**Poster LCTp2: Novel Display Applications**

**LCTp2 - 1**
Enhancement of the Switching Speed of a Refractive Microlens Array Based on Nematic LCs

Hanyang Univ., Korea

**LCTp2 - 2**
Optimization of LC Display for Optical Addressing of the ORW E-Paper

Q. Yu, A. Murauski, V. Chigrinov, H. S. Kwok
Hong Kong Univ. of S&T, Hong Kong
### Poster LCTp3: Image Sticking and Measurement Method

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<td>LCTp3 - 2 Line Image Sticking Analysis on a-Si TFT-LCD by Changing the Rubbing Directions and DC Bias</td>
<td>P. Zhang, H. Zhao, J. You, L. Huangfu, J. Lee BOE OptoElect. Tech., China</td>
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<td>LCTp3 - 4 A Novel Method to Determine the Optical Parameters of a Twisted Nematic LC Cell and a EWV Film</td>
<td>R.-B. Li, K.-H. Yang, W.-C. Chen HannStar Display, Taiwan Nat. Chiao Tung Univ., Taiwan</td>
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<td>LCTp3 - 5 Refractive Index Measurement Method for LC Materials in MMW Region by Using CPW Substrate</td>
<td>T. Nose, E. Birukawa, Y. Sato, R. Ito, M. Honma Akita Pref. Univ., Japan</td>
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<td>LCTp3 - 6 Precise Measurement of the LC Parameters Considering the Multiple Interferences in the LC Cell for the Quantitative Evaluation of LC Devices</td>
<td>T. Ishinabe, Y. Ohno, T. Miyashita, T. Uchida Tohoku Univ., Japan</td>
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**Wednesday December 9**

LCTp2 - 3 Wavelength-Selective Reflection of Cholesteric LCs Depending on Temperature and Dopant Concentration  
K.-S. Bae, Y.-J. Jang, C.-J. Yu, J.-H. Kim  
Hanyang Univ., Korea

LCTp2 - 4 New Preparation Method of Coatable Polarizer Utilizing Photocurable Organic-Based Lyotropic Chromonic LC Solution  
Y.-J. Bae, K.-U. Jeong, S.-H. Shin, M.-H. Lee  
Univ. of Chonbuk Nat., Korea  
Korea Inst. of Ind. Tech., Korea
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<td>High Precision Measurement Method for Threshold Voltage, Elastic and Dielectric Constants Ratio of LC Materials</td>
<td>Y. Chiba, Y. Ohno, T. Ishinabe, T. Miyashita, T. Uchida</td>
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<td>Poster</td>
<td>LCTp4: Display Mode and Analysis</td>
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<td>LCTp4 - 1</td>
<td>Study on the Homeotropic-Planar Transition of Cholesteric LCs</td>
<td>C. Nakcho, L. Heekeun, J. Taesung, F. Takeshita, L. Soonkwon, S. Sungtae</td>
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<td>Samsung Elect., Korea</td>
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<td>LCTp4 - 2</td>
<td>Analysis on Transient Response Times of Bend Aligned Nematic LC Cell</td>
<td>H. Shidara, T. Kobayashi, T. Takahashi, S. Saito</td>
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<td>Kogakuin Univ., Japan</td>
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<td>Analysis of Polymerization of Monomer Suspended in LCD</td>
<td>R. Kamoto</td>
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<td>LCTp4 - 4</td>
<td>Catastrophic Umbilicus of Ferroelectric-Like LC Instabilities</td>
<td>C. R. Ou, C.-M. Ou*</td>
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<td>*Kainan Univ., Taiwan</td>
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<td>Poster</td>
<td>LCTp5: High Performance LCDs</td>
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<td>LCTp5 - 1</td>
<td>High Optical Performance with Optimum Compensated Film on Right-Rotated TN LCDs</td>
<td>Y.-H. Lin, S.-C. F. Jiang, C.-H. Shih, W.-M. Huang</td>
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<td>AU Optronics, Taiwan</td>
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<td>LCTp5 - 2</td>
<td>Improvement in Viewing Angle Properties of CMVA-LCDs Using Uniaxial C- and A-Plates</td>
<td>S. Ogumi, M. Kurokawa, Y. Iimura</td>
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<td>Tokyo Univ. of A&amp;T, Japan</td>
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<td>LCTp5 - 3</td>
<td>Twisted-Nematic LCDs with Small Grayscale Inversion and Wide Viewing Angle</td>
<td>C.-H. Lin</td>
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<td>Nat. Sun Yat-Sen Univ., Taiwan</td>
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LCTp5 - 4  Required Characteristics of Lamp Response Time to Improve MPRT
LG Display, Korea

LCTp5 - 5  The MPRT Uniformity Improvement by the Block Division of the Backlight System
LG Display, Korea

LCTp5 - 6  The Relationships between the Performances of RTN-LCDs and the Properties of LC Materials
K. Takatoh, M. Naoyuki, M. Nishitateno, M. Akimoto
Tokyo Univ. of Sci. Yamaguchi, Japan

13:20 - 16:20  

Poster LCTp6: Polymer Stabilized LCDs

LCTp6 - 1  Improved Polymer Sustained Alignment Technology for VA Mode LCD
Chunghwa Picture Tubes, Taiwan

LCTp6 - 2  A Multistage UV-Curing Method of Polymeric Monomers to Improve Brightness of Bump-Less VA LCD
Chunghwa Picture Tubes, Taiwan

LCTp6 - 3  Surface Controlled 8-Domain Patterned Vertical Alignment Mode with Reactive Mesogen
Hanyang Univ., Korea

LCTp6 - 4  EO Characteristics of Polymer Stabilized Vertically Aligned (PSVA)-FLC Cell Using FLC Materials with/without SmA Phase
T. Narata, T. Murata, S. Saito, T. Takahashi
Kogakuin Univ., Japan

LCTp6 - 5  The PSLC Light Shutter for Transmissive Flexible Display
J. Lee, H. Yoon, S. Park, J. Muhammad, F. Muhammad, Y. Jeon
Konkuk Univ., Korea
LCTp7 - 1 Advanced Pixel Electrode Structure for High Contrast Ratio in the IPS Mode
H. Cho, S. Jeong, D. Kang
LG Display, Korea

LCTp7 - 2 Preparation of Black-White Reflective LC Display with Two Color Reflective Layers
W.-S. Choi
Hoseo Univ., Korea

LCTp7 - 3 Studies on Transparent Display Using LCD Panel
LG Display, Korea

LCTp7 - 4 Twist Stabilization in Pi-Cell
*Keio Univ., Japan
**Tokyo Univ. of Sci., Yamaguchi, Japan

LCTp7 - 5 Electro-Optical Stability in a Flexible LCD with Adhesive Spacers under Bending Deformation
*Hanyang Univ., Korea
**Res. Inst. of Info. Display Eng., Korea

LCTp8 - 1 Fabrication of Flexible LCD with LC Alignment and Tight Bonding by Surface Grooves
E.-Y. Kim, I. Y. Han, Y.-J. Lee, J. S. Gwag*, J.-H. Kim
Hanyang Univ., Korea
*Yeungnam Univ., Korea

LCTp8 - 2 Tilted Orientation of Nematic LC on Aluminum Anodic Oxide Film
Y. Kobayashi, T. Shingo, K. Imai, S. Saito, T. Takahashi
Kogakuin Univ., Japan
LCTp8 - 3  Comparison of Surface Characteristics on Alignment Films by Postbake Condition with NEXAFS
M. Kwak, H. Chung, H. Kwon, D. Han, Y. Yi, H. Jeon, S. Lee, C. Lee, S. Cha
LG Display, Korea

LCTp8 - 4  Directional Property Change of Rubbed Polyimide Films upon the Rubbing Condition
POSTECH, Korea
*LG Display, Korea

LCTp8 - 5  Fabrication of Bistable Surface and Control of Pre-Tilt Angle by Alignment Material Coating Using an Electro-Spray Method
N. Endo, Y. Kudou, S. Saito, T. Takahashi
Kogakuin Univ., Japan

LCTp8 - 6  Effects of LCD Fabrication Process after Rubbing on LC Alignment Film
I. Hirosawa, T. Koganezawa, H. Ishii
Japan Synchrotron Radiation Res. Inst., Japan
*Nissan Chem. Inds., Japan

LCTp8 - 7  Orientation Characteristics of FLC on UV Curable LC Polymer Film Used as An Alignment Layer
N. Kubota, T. Narita, Y. Oi, S. Saito, T. Takahashi
Kogakuin Univ., Japan

LCTp8 - 8  Formation of Bi-Stable Alignment Surface Using a Mixture of Two Kinds of Photo-Alignment Material Making LC Molecules Align to Distinctive Directions for Polarization Direction of UV Light
K. Tsukada, T. Takahashi, S. Saito
Kogakuin Univ., Japan

LCTp8 - 9  Advanced Photo-Alignment Method with Fast Response Time
Hanyang Univ., Korea
*Yeungnam Univ., Korea

LCTp8 - 10 Studies of Frictional Properties on VA Mode Alignment Films by Temperature Condition with Frictional Force Microscopy
M. Kwak, H. Chung, H. Kwon, D. Han, Y. Yi, J. Jeon, S. Lee, C. Lee, S. Cha
LG Display, Korea
LCTp8 - 11  Evaluation of the Temperature Dependence of Surface Polar Anchoring Strength of LC Devices
Y. Yoshita, Y. Ohno, T. Ishinabe, T. Miyashita, T. Uchida
Tohoku Univ., Japan

LCTp8 - 12  Surface Azimuthal Anchoring Measurement Method Using Wedge LC Cell
S. K. Hwang, J. H. Kwon, J. S. Gwag
Yeungnam Univ., Korea

LCTp8 - 13  Molecular Orientational Ordering in 5CB Thin Film above Tc on Rubbed Polyimide Film
T. Koganezawa, I. Hirosawa, H. Ishii*
Japan Synchrotron Radiation Res. Inst., Japan
*Nissan Chem. Inds., Japan

LCTp8 - 14  Simultaneous Determination of Anchoring Energy and Elastic Constants of Nematic LCs by Capacitance Measurement
*Osaka Pref. Univ., Japan
**The Res. Inst. for Molecular Elec. Devices, Japan
***Merck, Japan
****Merck KGaA, Germany

LCTp8 - 15  Multi-Domain Alignment of LC on Polyimide Layers by Using Ion Beam Scanning Method
P. K. Son, S. W. Hwang, J. C. Kim, Y. T.-Hoon
Pusan Nat. Univ., Korea

Wednesday
December 9

LCT1 - 1:  Invited  Development of Super Hi-Vision Displays with High Picture Quality and Ultra High Definition
16:40  M. Kanazawa
NHK, Japan

LCT1 - 2  Panel Bruising Suppression for a MVA Mode Display
17:05  Y.-Y. Huang, H.-T. Yu
Chunghwa Picture Tubes, Taiwan

Chair: A. Kubono, Shizuoka Univ., Japan
Co-Chair: H. Wakemoto, TMD, Japan
LCT1 - 3
17:25
PI-Less Technology Development for Vertical Alignment TFT-LCD
Chunghwa Picture Tubes, Taiwan

Author Interviews
18:00 – 19:00

Thursday, December 10

10:40 - 12:15
TENRAN

LCT2: Advanced Blue Phase LC Technology

Chair: H. Fujikake, NHK, Japan
Co-Chair: M. Ozaki, Osaka Univ., Japan

LCT2 - 1: Invited Potential and Challenges of Optically Isotropic LCs for Display Applications
10:40
H. Kikuchi
Kyushu Univ., Japan

LCT2 - 2: Invited Mono-Domain Growth of LC Blue Phase and Its Application to Photonic and Display Devices
11:05
K. Shirota, S. Kawata
RIKEN, Japan

LCT2 - 3: Invited Simulation Study of Cholesteric Blue Phases Under an Electric Field
11:30
J. Fukuda*, M. Yoneya*, H. Yokoyama**
* AIST, Japan
** Kent State Univ., USA

LCT2 - 4: Electro-Optical Characteristics of Optically Isotropic LCDs Driven by Fringe Electric Field
11:55
Chonbuk Nat. Univ., Korea

----- Lunch -----
LCT3 - 1:  
**Invited**  Liquid Crystals for TFT Applications  
13:20  
J. Hanna*,**, H. Iino*,**, K. Nakano*  
*Tokyo Inst. of Tech., Japan  
**JST-CREST, Japan

LCT3 - 2:  
**Invited**  Negative Dispersion Reactive Mesogen Materials for Optical Films  
13:45  
O. Parri, R. Harding*, K. Adlem, P. Saxton,  
K. Skjonnemand, D. Wilkes*  
Merck Chems., UK  
*Merck Advanced Tech., Korea

LCT3 - 3  
Growth of Metal Nanoparticles Doped in Nematic LCs and Its Effect on the Electrooptic Properties  
14:10  
H. Yoshida, K. Kawamoto, Y. Tanaka, H. Kubo, A. Fujii, M. Ozaki  
Osaka Univ., Japan

LCT3 - 4  
LC Colloidal Particles in Non Uniform Electric Field as a Potential Material for Novel Type of E-Paper  
14:30  
V. Borshch, O. Lavrentovich  
Kent State Univ., USA

----- Break -----

LCT4: New Functional LC Devices

Chair:  
T. Nose, Akita Pref. Univ., Japan  
Co-Chair:  
O. Parri, Merck Chems., UK

LCT4 - 1:  
**Invited**  LC Lens and Its Application to Imaging Devices  
15:00  
S. Sato, M. Ye  
Akita Pref. R&D Ctr., Japan

LCT4 - 2:  
**Invited**  Photo-Responsive LCs for Photon-Mode Color Display  
15:25  
S. Kurihara, T. Ogata, M. Moritsugu*  
Kumamoto Univ., Japan  
*Kinki Univ., Japan
Displaying High Quality Images on a Field Sequential Color LCD Using Active Matrix Narrow-Gap TN Modules Embedded with Nanoparticles


Tokyo Univ. of Sci. Yamaguchi, Japan
*HDT, Japan
**Okaya Elec. Ind., Japan
***DIC, Japan

Tandem-Type Variable Optical Attenuator Composed of Both Smectic and Nematic LC Cells


Chitose Inst. of S&T, Japan
*Kyosera Kinseki Hokkaido, Japan
**Miwa Elec., Japan
***Kyushu Nanotec Optics, Japan

----- Break -----
Optimization of Circular Polarized Transflective Vertical Alignment LC Cell

J.-M. Choi, J. W. Moon, G.-D. Lee
Dong-A Univ., Korea

Author Interviews
18:00 – 19:00

Friday, December 11

9:00 - 10:20

LCT6: Measurement Method and Characterization

Chair: M. Inoue, Toyo, Japan
Co-Chair: H. Yokoyama, Kent State Univ., USA

LCT6 - 1
9:00
A New Measurement Method of Ion Quantity in LC Cells

S. Ogawa, T. Miyashita, T. Uchida, K. Nakao*, H. Wakemoto*
Tohoku Univ., Japan
*Toshiba Mobile Display, Japan

LCT6 - 2
9:20
Determination of Dispersion of Refractive Indices Based on Plural Incidence Renormalized Transmission Spectroscopic Ellipsometry

K. Goda, M. Kimura, T. Akahane
Nagaoka Univ. of Tech., Japan

LCT6 - 3
9:40
A Method to Monitor Birefringence $\Delta n$ of LC at Small Size Panel

Y.-L. Liao, S.-H. Hung, C.-H. Shih, W.-M. Huang
AU Optronics, Taiwan

LCT6 - 4
10:00
Polarization Imaging for Characterization of LCDs and Their Components

P. Boher, T. Leroux, V. Collomb-Patton, T. Bignon, D. Glinel
ELDIM, France

----- Break -----
LCT7 - 1: *Invited* Nanostructured Orientational Surface Patterns for Functional LC Alignment  

10:40  
  
Kent State Univ., USA  
  
*JAIST, Japan  
**Hanyang Univ., Korea  
***AIST, Japan

LCT7 - 2  
LC Device Having the Nano-Groove Structure by Nano-Imprint Lithography  
11:05  
H. Takahashi, T. Sakamoto, H. Okada  
  
Univ. of Toyama, Japan

LCT7 - 3  
LC Alignment on the Films of Polyhedral Oligomeric Silsesquioxane Nanoparticle  
11:25  
S.-C. Jeng, Y.-M. Shieh*, S.-J. Hwang*  
  
Nat. Chiao Tung Univ., Taiwan  
*Nat. United Univ., Taiwan

LCT7 - 4  
Effect of Nanoparticles Embedded in the Alignment Layer on the Interfacial Properties of LCD  
11:45  
  
Tokyo Univ. of Sci. Yamaguchi, Japan  
*Keio Univ., Japan

----- Lunch -----
Workshop on Active Matrix Displays

Wednesday, December 9

13:20 - 14:30 TENZUI

AMD1: System on Panel

Chair: G. Fortunato, CNR-IMM, Italy
Co-Chair: M. Hiramatsu, TMD, Japan

AMD1 - 1: Invited  System on Glass Circuit Design Technology
13:20
Y. Aoki, H. Kimura
Toshiba Mobile Display, Japan

AMD1 - 2: Invited  Ultra-Low Power System-LCDs with Pixel-Memory Circuit
13:45
Sharp, Japan

AMD1 - 3  Integrated Ambient Light Sensor with an LTPS Noise-Robust Circuit and a-Si Photodiodes for AMLCDs
14:10
TPO Displays, Japan,
*TPO Displays, Taiwan,
**Philips Res., UK

----- Break -----
Microcrystalline Silicon Thin Film Transistors by Excimer Laser Annealing for Large-Sized TFT-LCDs


Sharp, Japan

Comparison of Corning Silicon-on-Glass Technology and ELA Poly-Si TFT Uniformity Performance


Corning, USA
†Kyung Hee Univ., Korea
**Carestream Health, USA

----- Break -----
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<td><strong>TENGYOKU</strong></td>
<td><strong>AMD4/OLED4: AM-OLED (2)</strong></td>
<td>Invited Top Emitting White OLED Technology for Small and Medium-Sized AMOLED Displays</td>
<td>D. Peng, R. Nishikawa</td>
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<td>TPO Displays, Taiwan</td>
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<td>Semiconductor Energy Lab., Japan</td>
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<td>Sample and Hold DeMUX Method for Threshold Voltage Compensation Pixel Circuits of AMOLEDs</td>
<td>S. Choi, C. Kang, S. Hwang, K. Kim, B. Kim</td>
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<td>Samsung Mobile Display, Korea</td>
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<td>CNR-IMM, Italy</td>
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<td>Univ. of Tokyo, Japan</td>
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Vertical a-Si Schottky Diodes and NIP Diodes for Photo-Sensing Applications in LTPS Displays


TPO Displays, Taiwan

Philips Res., UK

Characterization of Si Films Crystallized by RTA for Photo-Sensor Diode

J. de Dieu Mugiraneza, T. Miyahira, A. Sakamoto, T. Noguchi, W. Yeh

Univ. of the Ryukyus, Japan

Nat. Taiwan Univ. of S&T, Taiwan

Invited A 169 dpi Flexible OTFT Backplane with Printed Organic Semiconductor for Electrophoretic Display

N. Kawashima, N. Kobayashi, Y. Nobuhide, H. Ono, T. Fukuda, T. Ohe, Y. Ishii, A. Nomoto, M. Sasaki, K. Nomoto

Sony, Japan

High Resolution, 200 ppi LCD Driven by Entirely Printed Organic TFT

K. Matsuoka, O. Kina, M. Koutake, K. Noda

H. Yonehara, K. Yase

Konica Minolta Tech. Ctr., Japan

Toppan Printing, Japan

DIC, Japan

ADEKA, Japan

AIST, Japan

Stable Bottom-Contact Organic Thin-Film Transistor Array with Fluoropolymer Dielectric for Flexible Displays

Y. Fujisaki, D. Kumaki, Y. Nakajima, T. Yamamoto, H. Fujikake, S. Tokito

NHK, Japan
Author Interviews
18:00 – 19:00

Friday, December 11

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</thead>
</table>
Chunghwa Picture Tubes, Taiwan |
| AMDp - 2 The Triple Gates Method Implemented on 15.6-in. TFT-LCD Display | C.-Y. Wang, T.-C. Hsu, L.-H. Yeh, M.-W. Tsai  
Chunghwa Picture Tubes, Taiwan |
Chunghwa Picture Tubes, Taiwan |
| AMDp - 4 A Novel a-Si TFT LCD with New AFFS for Superior Sunlight Readability | M. S. Im, J. K. Park, J. H. Park, D. L. Choi, S. Y. Choi, O. S. Son, D. H. Suh, S. Gon  
Hydis Tech., Korea |
| AMDp - 5 Design Methodology for Operational Amplifiers Using Poly-Si TFTs | K. Satsu*, H. Hashimoto*, M. Kimura**  
*Pryukoku Univ., Japan  
**Innovative Materials & Processing Res. Ctr., Japan |
| AMDp - 6 High Stability Amorphous Shift Register Circuit with Dual Gate Structure | C.-Y. Wu, C.-Y. Yang, C.-Y. Huang, H.-L. Chen  
AU Optronics, Taiwan |
AMDp - 7  Power Consumption of Integrated a-Si:H Gate Driver Using Simplified Structure
AU Optronics, Taiwan

AMDp - 8  7.0-in. a-Si:H TFT-LCD with Stable Integrate Gate Driver
Y.-J. Chen, H.-C. Chang, C. Yen, W. Wu, C. Yu
HannStar, Taiwan

AMDp - 9  A Repairing Method for the Interlaced Gate Driver In Array (GIA) Circuit
†Inst. of Jiangsu (IVO) FPD Tech. & Res., China
**InfoVision OptoElect., China

AMDp - 10  The Improvement of Photo-Leakage-Current for P-Type Low Temperature Poly-Si TFTs
Y.-J. Hsu, M.-H. Lee, J.-S. Chen, W.-M. Huang
AU Optronics, Taiwan

AMDp - 11  Influence of Grain Size on Voltage Swing and Threshold Voltage of Poly-Si Thin Film Transistors
F. Oshiro, A. Sakamoto, T. Noguchi, T. Ohachi
Univ. of the Ryukyus, Japan
Doshisha Univ., Japan

AMDp - 12  The Investigation of Reliability in the Short Channel SPC-Si TFT on the Glass Substrate
S.-G. Park, S.-H. Choi, Y.-J. Kim, M.-K Han
Seoul Nat. Univ., Korea

AMDp - 13  Crystallization of Amorphous Silicon Utilizing a Line Plasma Scanning
N. Ohta, N. Imamura, H. Shimizu, T. Kobayashi, H. Shirai
Saitama Univ., Japan
Saitama Ind. Tech. Ctr., Japan
Inst. of Physical & Chem. Res., Japan

AMDp - 14  Hot Carrier Stress for Low-Temperature Poly-Si TFTs with Various Widths
AU Optronics, Taiwan
AMDp - 15  Novel Self-Aligned Gate-Receded Structure for TFTs with Solid Phase Crystallization for AMOLED Display  
AU Optronics, Taiwan

AMDp - 16  Study on Capacitance-Voltage Characteristics of Poly-Silicon Thin-Film Transistors  
W. Choi, J. Jang  
Kyung Hee Univ., Korea

AMDp - 17  Mechanism of Bias Temperature Instability for a-Si:H Thin Film Transistors in Integrated Gate Driver Circuits  
AU Optronics, Taiwan

AMDp - 18  Novel AlNiLa Serves as Gate Electrodes of a-Si:H TFT for AMLCD  
Nat. Chiao Tung Univ., Taiwan  
*GiantPlus Tech., Taiwan

AMDp - 19  ELP NiP Served as Adhesion Layer during Copper Metallization for AMLCD Application  
Nat. Chiao Tung Univ., Taiwan  
*Air Liquide Labs., Japan

AMDp - 20  Electrical Characteristics of Short Channel a-Si:H TFT with Cu Metal for Large-Size Panel  
LG Display, Korea  
*Kyungpook Nat. Univ., Korea

AMDp - 21  Study of Short Channel Hydrogenated Amorphous Silicon TFTs for TFT-LCD  
AU Optronics, Taiwan

AMDp - 22  Enhancement of a-Si:H TFT Performance by Well-Designed Structure  
C. Ha, Y.-S. Cho, T.-H. Kim, K.-H. Moon, C.-G. Lee, S.-Y. Cha  
LG Display, Korea
AMDp - 23 Microcrystalline Silicon from a SiH₂Cl₂ and H₂ Mixture Using a High-Density Microwave Plasma Source Utilizing a Spoke Antenna

D. Ohba, S. Sato, T. Kobayashi*†, H. Shirai
Saïtama Univ., Japan
Inst. of Physical & Chem. Res., Japan

AMDp - 24 Device Characteristics of Nanoscale Organic Field-Effect Transistors

*Osaka Pref. Univ., Japan
††The Res. Inst. of Molecular Elect. Device, Japan
†††NICT, Japan

AMDp - 25 Growth of Pentacene Film on Superhydrophobic Surface and Thin-Film Transistor Performance

Hanyang Univ., Korea

AMDp - 26 Low-Temperature Processable and Surface Energy Controlled Polyimide Gate Insulators for Flexible Pentacene Thin-Film Transistor

Y. Choi, M. H. Yi, T. Ahn
Korea Res. Inst. of Chem. Tech., Korea

AMDp - 27 Effects of Solvents on Electrical Properties of Polythiophene-Based Organic Thin-Film Transistors

F.-C. Wu, W.-Q. Lin, S.-W. Hsu, H.-L. Cheng
Nat. Cheng Kung Univ., Taiwan

AMDp - 28 Solution-Processed Thin Film Transistors with Hafnium Indium Zinc Oxide for AMOLEDs Backplane

W. H. Jeong, G. H. Kim, H. S. Shin, H. J. Kim
Yonsei Univ., Korea

AMDp - 29 Hysteresis Phenomenon of Oxide-Based TFTs under the Light Illumination

T.-J. Ha, S.-J. Kim, J.-S. Lee, S.-Y. Lee, H.-S. Park, M.-K. Han
Seoul Nat. Univ., Korea

AMDp - 30 Development of Solution-Based IZO TFT with Organic Passivation and Laser Direct Writing Technology

Taiwan TFT-LCD Assn., Taiwan
AMDp - 31 Method of Adjusting Threshold Voltage in Indium Gallium Oxide Based Thin Film Transistors
S.-L. Wang, H.-W. Kuo, L.-H. Peng
Nat. Taiwan Univ., Taiwan

AMDp - 32 Electrical Characteristics of ZnO Thin Film Transistors with Laser Annealing
H.-S. Seong, J. H. Son, N. Jang, J. J. Kim, J. Y. Bak, H. S. Kim, Y. Yun
Korea Maritime Univ., Korea

AMDp - 33 The Fabrication of Oxide Transistors by Using Room Temperature Sputtering Deposited Indium Gallium Zinc Oxide Film
S.-C. Weng, H.-A. Li, C.-N. Mo, Y.-S. Chu*, H.-P. Shieh
Chunghwa Picture Tubes, Taiwan
†Nat. Chiao Tung Univ., Taiwan

AMDp - 34 Oxide TFT Rectifier with RF Antenna
Hoseo Univ., Korea
†ETRI, Korea

AMDp - 35 Effect of Blocking Metal Layer on Lateral Polysilicon PIN Diode
S.-B. Ji, H.-S. Park, S.-H. Kuk, M.-K. Han
Seoul Nat. Univ., Korea

----- Lunch -----
IGZO TFTs with Good Environmental Stability and Short-Range Uniformity

H.-H. Hsieh, J.-Y. Huang, W.-P. Huang, Y.-H. Lin, C.-C. Wu
AU Optronics, Taiwan
* Nat. Taiwan Univ., Taiwan

Amorphous In-Ga-Zn-O TFT-LCDs with High Reliability

Sharp, Japan

----- Break -----
AMD8 - 4  16:00  Transparent Oxide Thin Film Transistor with Novel Zirconium Doped Indium-Zinc Oxide Semiconductor

J.-S. Park, K. S. Kim, Y. G. Mo, H. Kim, S. S. Kim
Samsung Mobile Display, Korea

Author Interviews
16:20 – 17:20

Supporting Organization:
Thin Film Materials & Devices Meeting

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**IDW Outstanding Poster Paper Award**

This award will go to the most outstanding paper selected from those presented at IDW ’09 poster presentation.

The 2009 award winners will be announced on the IDW website: http://www.idw.ne.jp/award.html

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**IMID 2009**

October 12–16, 2009
Seoul, Korea
## Workshop on FPD Manufacturing, Materials and Components

### Wednesday, December 9

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S. H. Herman, T. Akahori, S. Horita  
JAIST, Japan  

**FMC1 - 2**: **Invited** Optimization of Source-Drain Contact Process with Cu-Mn Alloys  
J. Koike, M. Sano, K. Hirota, Y. Sutou, K. Neishi  
Tohoku Univ., Japan  

**FMC1 - 3**: **Invited** ZnO Thin Films Prepared by Plasma-Assisted Atomic Layer Deposition as an Active Channel Layer for Bottom-Gate TFT  
N. Hattori, K. Murata, N. Miyatake, Y. Kawamura*,  
Y. Uraoka*  
Mitsui Eng. & Shipbuilding, Japan  
*Nara Inst. of S&T, Japan  

**FMC1 - 4** TFT-LCD Panel by Using Soda-Lime Glass  
S. W. Chu, I. Yeh, J. N. Yeh, C. Y. Tu, H. W. Fan,  
J. J. Lee, P. F. Yu, W. C. Tsai, C. H. Chen  
AU Optronics, Taiwan  

----- Break -----  

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| 15:00 - 16:20 | **FMC2: Manufacturing Technologies II** | **FMC2 - 1** Low-Temperature Growth of Si Film on Yttria-Stabilized Zirconia Stimulation Layer  
S. H. Herman, T. Akahori, S. Horita  
JAIST, Japan  

**FMC2 - 2**: **Invited** Optimization of Source-Drain Contact Process with Cu-Mn Alloys  
J. Koike, M. Sano, K. Hirota, Y. Sutou, K. Neishi  
Tohoku Univ., Japan  

**FMC2 - 3**: **Invited** ZnO Thin Films Prepared by Plasma-Assisted Atomic Layer Deposition as an Active Channel Layer for Bottom-Gate TFT  
N. Hattori, K. Murata, N. Miyatake, Y. Kawamura*,  
Y. Uraoka*  
Mitsui Eng. & Shipbuilding, Japan  
*Nara Inst. of S&T, Japan  

**FMC2 - 4** TFT-LCD Panel by Using Soda-Lime Glass  
S. W. Chu, I. Yeh, J. N. Yeh, C. Y. Tu, H. W. Fan,  
J. J. Lee, P. F. Yu, W. C. Tsai, C. H. Chen  
AU Optronics, Taiwan
FMC2 - 1: Invited Large Area Black/White Bistable Cholesteric Liquid Crystal Display and the Thermal-Addressing System

ITRI, Taiwan

FMC2 - 2: Invited Control of Microbubbles in Pressure Dispense Applications

G. Tom, W. Liu
ATMI, USA

FMC2 - 3: Novel RF Based Endpoint Detection for RPS Based CVD Chamber Cleaning

AKT/Appl. Materials, Japan
*AKT/Appl. Materials, USA
**Forth-Rite Tech., USA

FMC2 - 4: Low Cost LTPS Manufacturing Process with High Controllability Using Half Exposure Technology

Y. Nakashima, H. Sera, T. Miyata, T. Umeno, T. Iwashita, T. Matsumoto
Seiko Epson, Japan

----- Break -----
Recycling Technology for Resist Stripper Ethylene Carbonate to Decrease the Environmental Load

H. Ota, H. Otsubo, M. Yanagi, Y. Kamimoto* , H. Fujii*
Nomura Micro Sci., Japan
*Kanagawa Ind. Tech. Ctr., Japan

Author Interviews
18:00 – 19:00

Thursday, December 10

9:00 - 12:00 3F Foyer

FMCp - 1 Effect of Processing Variables on the Growth Behavior of Impurity-Doped GxZO Thin Films by DC-Magnetron Sputtering Method
K.-H. Seo, C.-W. Kim, Y.-W. Yoo, M. Park, K.-N. Lim, S.-J. Yu
LG Display, Korea

FMCp - 2 Local Deposition of SiOx Using an Atmospheric-Pressure Microplasma Jet from a Tetraetoxysilane for a Gate Dielectric Layer of ZnO Thin-Film Transistors
T. Pang, Y. Ding, J. Jie, H. Jia*, H. Shirai
Saitama Univ., Japan
*AIST, Japan

FMCp - 3 Characterization of AZOY Films Deposited at Room Temperature by RF Magnetron Sputtering
Y.-Y. Chen, R.-C. Chang*, C.-H. Yang, C.-C. Chang**
Tatung Univ., Taiwan
*St. John’s Univ., Taiwan
**Chungwa Picture Tubes, Taiwan

FMCp - 4 Surface Morphology and Reliability Evaluation of Insulating Films on Stainless Steel Foil
N. Yamada, T. Ogura, S. Ito, Y. Kubo
Nippon Steel, Japan
FMCp - 5 Optical Properties Dependence of After-Rubbing Cleaning Process Conditions in TFT-LCD

*Inst. of Jiangsu IVO FPD Tech. & Res., China
**InfoVision OptoElect., China

FMCp - 6 Development of High Productivity Ion Implanter MAGIC-i for Flat Panel Displays

M. Ogura, T. Ikoma, S. Harada, K. Shimamura, N. White*
*Mitsui Eng. & Shipbuilding, Japan
*ALBION, USA

FMCp - 7 Image Defect in TFT-LCD Screen

E. Jabes
COWI, Sultanate of Oman

FMCp - 8 Simulation Modeling of TFT-LCD Color Filter Fab

J. C. Chen, P. B. Huang, C.-J. Sun, K.-J. Chao,
G. C. Chao, J.-W. Chien, C.-C. Chen*, C.-N. Mo*,
T.-W. Peng*, Y.-Y. Wei*, C.-H. Feng*, Y.-C. Liu*,
M.-T. Chiang*
Chung-Yuan Christian Univ., Taiwan
*Chunghwa Picture Tubes, Taiwan

FMCp - 9 Design and Implementation High Coupling Apparatus between LED and Light Guide

C.-W. Su, T.-Y. Li, C.-C. Chang
Chunghwa Picture Tubes, Taiwan

FMCp - 10 The LED Side-Lighting Fitting for Liquid Crystal Display Backlight Application

Tatung Univ., Taiwan
*Chunghwa Picture Tubes, Taiwan

FMCp - 11 High-Efficiency Diffraction Grating Light Guide Plate for Blue LED

L.-M. Yang
Nat. Chiao Tung Univ., Taiwan

FMCp - 12 Integrated Light-Guided Plates (LGPs) with Optimized Pyramid-Like Microstructures

Y.-Y. Chang, W.-H. Yang, H.-C. Yeh, C.-J. Ting, H.-H. Lin,
J.-H. Tsai
ITRI, Taiwan
FMCp - 13 Characteristics of Microlens Array Optical Sheets with Apertures  
S. H. Baik, S. K. Hwang, G. Park, J. H. Kwon  
Yeungnam Univ., Korea  
*LG Display, Korea

FMCp - 14 A New Design Diffuser for LCD Backlight Application  
T.-L. Tai, Y.-T. Li, C.-S. Chu, W.-T. Tien, C.-H. Fan  
ITRI, Taiwan

FMCp - 15 Practical Model to Analyze the Characteristics of CCFL for Backlighting  
K. Misono  
Tsuruoka Nat. College of Tech., Japan

FMCp - 16 An Efficient Thermal Stress Estimation Using Block Adaptive Filtering  
M.-L. Tai  
Chunghwa Picture Tubes, Taiwan

FMCp - 17 Simulation Study of the Edge-Lit Backlight Unit for LCD Monitor Applications  
Hallym Univ., Korea  
*Samsung Elect., Korea

FMCp - 18 Transparent PC-Based Composite Display Substrate  
G. Kim, S.-M. Yoon, H. Chun*  
ETRI, Korea  
*KITECH, Korea

FMCp - 19 Development of a Low Thermal Shrinkage Glass Substrate for LTPS TFT-LCD  
T. Kawaguchi, Y. Kato, S. Miwa, H. Yamazaki  
Nipppon Elec. Glass, Japan

FMCp - 20 A Spy on Solid-State Photopolymerization: Real-Time FT-IR Spectroscopy to Watch the Photoreaction of a Negative-Type Photoresist  
LG Chem, Korea

FMCp - 21 Proposals of a Curtailed Process for Manufacturing LC Panels with New-Type Sealants  
H. Sakurai, H. Takeda, Y. Ono  
DIC, Japan
FMCp - 22  Synthesis of Fullerene/Polystyrene Composite Nanoparticles by Emulsion Polymerizations
  K.-J. Kim, S. Park, M.-H. Lee
  Chonbuk Nat. Univ., Korea

FMCp - 23  Reliability Improvement of a-Si TFT Using Low Water Absorption Type of Photosensitive Passivation Layer with Low Dielectric Constant
  K. Sugitani
  ZEON, Japan

FMCp - 24  Transfer of Graphene from HOPG to Substrates by Controlling Their Surface Properties
  K.-B. Kim, J. Choi
  Kyung Hee Univ., Korea

FMCp - 25  Ultrathin Nickel Metallic Layer on Glass as a Transparent Electrode
  C.-M. Lee, J. Choi
  Kyung Hee Univ., Korea

FMCp - 26  Effect of Targets Used on Preparation of Impurity-Doped ZnO Transparent Electrodes by DC Magnetron Sputtering Deposition
  Kanazawa Inst. of Tech., Japan

FMCp - 27  Preparation of Black Absorber Layer for Cholesteric Liquid Crystal Display
  C.-C. Weng, I-J. Cheng, Y.-C. Lin
  ITRI, Taiwan

FMCp - 28  Simplified Ink-Jet Printed Metal-Insulator-Metal Devices for Capacitance Measurement
  P.-Y. Kao, J.-A. Cheng
  Nat. Chiao Tung Univ., Taiwan

FMCp - 29  Preparation of Negative C-Type Optical Anisotropic Film with Embedded Positive A Layer
  C.-M. Wu, M.-T. Wu, S.-Y. Lin, K.-T. Huang
  ITRI, Taiwan

FMCp - 30  Novel Coatable Negative C-Plate Retarder
  A. Lazarev, A. Geivandov*, I. Kasianova*
  Crysoptix KK, Japan
  *Kontrakt, Russia
Thursday

FMCp - 31 A Novel High Retardation Polymer Film for Liquid Crystal Displays
D. Kobayashi***, A. Tagaya***, Y. Koike***
*Keio Univ., Japan
**ERATO-SORST/JST, Japan

FMCp - 32 Optical Performance of Polarizer Varied with Time
Chunghwa Picture Tubes, Taiwan

FMCp - 33 Large Size of Multi-Touch Projected Capacitive Touch Panel
Chunghwa Picture Tubes, Taiwan

FMCp - 34 Advanced Projected Capacitive Touch Screen Structure
C.-W. Wu, L.-C. Jhuo, J.-C. Lin, C.-C. Hu, C.-L. Tsou
Chunghwa Picture Tubes, Taiwan

15:00 - 16:20 TENGYOKU

FMC4: Materials I

Chair: Pi.-C. Yeh, AU Optronic, Taiwan
Co-Chair: T. Unate, Sekisu Chem., Japan

FMC4 - 1: Invited Development of ITO Ink for Ink-Jet Printing:
Evaluation of the Novel Ink
15:00
O. Yamamoto
Akita Univ., Japan

FMC4 - 2 Al/Ag/Al Thin Films Prepared by Sputtering for TFT Electrodes
15:20
M. Kawamura, Y. Inami, Y. Abe, K. Sasaki
Kitami Inst. of Tech., Japan

FMC4 - 3 Fabrication of 15-in. XGA IPS Panel with Ga Doped ZnO Pixel Electrode
15:40
LG Display, Korea
*LG Chem, Korea

December 10
Thursday

FMC4 - 4  
16:00  
Transmissive Low Outgassing Constructional Material for Organic Light Emitting Display  
T. Natsume, M. Hanmura, H. Ohmori, T. Katoh  
ZEON, Japan

----- Break -----

16:40 - 18:00  
FMC5: Materials II  
TENGYOKU

Chair:  
X. Chu, Vitex Sys., USA
Co-Chair:  
K. Miyazawa, Chisso, Japan

FMC5 - 1:  
Invited LC Alignment Control Using Reactive Mesogen Mixed with Alignment Layers  
16:40  
Hanyang Univ., Korea

FMC5 - 2  
Alignment Properties of Reactive Liquid Crystals Affected by the Characteristics of a Rubbed Polyimide Film  
17:00  
P.-C. Yeh, C.-W. Chen, C.-H. Shih, W.-M. Huang  
AU Optronics, Taiwan

FMC5 - 3  
A Simple Correction to Thin Panel Strength Value from 4-Point Bend Test  
17:20  
T. Ono, G. Pai*, S. Gulati**  
Corning Tech. Ctr., Japan  
*Corning Display Tech., Taiwan  
**Corning, USA

FMC5 - 4  
Properties of Silplus Films Constructed from Organic-Inorganic Hybrid Materials, Containing Cage-Type Silsesquioxane Structures  
17:40  
T. Saito, T. Morimoto, M. Isozaki, H. Ando, K. Hayashi  
Nippon Steel Chem., Japan

Author Interviews  
18:00 – 19:00

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<td>Does a Field Emission Backlight Make Sense?</td>
<td>D. den Engelsen, J. Silver, R. Withnall</td>
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<td>Brunel Univ., UK</td>
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<td>FMC6 - 2</td>
<td>Optical Design for an Ultra-Thin, LED Based, 2D Dimmable Backlight</td>
<td>E. Onac, S. Bierhuizen*, G. Eng*</td>
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<td>Philips Res. Eindhoven, the Netherlands</td>
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<td>Philips Lumileds Lighting, USA</td>
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<td>M. Nakamura, S. Murao, X.-F. Feng*</td>
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<td>Sharp Labs. of America, USA</td>
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<td>Short-Afterglow CCFL for Blinking Backlight</td>
<td>T. Igarashi, T. Kusunoki</td>
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FMC7 - 3 11:20  A Novel LCD Using a High Definition Scattering Film
T. Saruta*,**, A. Tagaya*,**, Y. Koike***
*Keio Univ., Japan
**ERATO-SORST/JST, Japan

FMC7 - 4 11:40  Micro-Lens Array Formation by Offset Printing
A. Kishioka, S. Sekiguchi, T. Sugita, S. Komura*,
M. Sasaki*
Hitachi, Japan
*Hitachi Displays, Japan

FMC7 - 5 12:00  Design and Fabrication of a Multifunctional Light Guide Plate for LCDs
K. Kim, M. Kubota, K. Nakatsuka
Sumitomo Chems., Japan

----- Lunch -----
FMC8 - 4  Manufacturing of Coatable Guest-Host Retarder for LCD
14:20
A. Lazarev*, A. Geivandov*, I. Kasianova**,
E. Kharatiyan**, P. Lazarev**, S. Palto***
*Crysoptix, Japan
**Kontrakt, Russia
***Inst. of Crystallography RAS, Japan

----- Break -----

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<td>Co-Chair: T. Uchiyama, Teijin, Japan</td>
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<td>FMC9 - 1</td>
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<td>Large Area Fabrication of Periodic Microstructures Using “Nano-Buckling System”</td>
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<td>T. Okayasu, Y. Mori, K. Muto, C. Yoshimura, Y. Nishikori</td>
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<td>The Performances of Collimated Backlight and Front Diffusing Systems about Several LC Modes</td>
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<td>Nitto Denko, Japan</td>
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<td>Use of Polarization-Scrambling Filter for Secure Display</td>
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<td>Univ. of Tokushima, Japan</td>
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<td>FMC9 - 4</td>
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<td>2-D Birefringence Measurement System Using Photonic Crystal Technology</td>
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Author Interviews
16:20 – 17:20

Supporting Organizations:
The Japan Society for Printing Science and Technology
Japan Society of Colour Material
The Technical Association of Photopolymers, Japan
Society of Photographic Science and Technology of Japan
The Society of Radtech, Japan
The Japanese Research Association of Organic Electronics Materials
Japan Electronics Packaging and Circuits Association
PDPp - 1 Influence of an Impurity Gas on the Discharge Characteristics of an AC PDP
Nihon Univ., Japan
*NHK, Japan

PDPp - 2 Optimum Gas Mixtures for Xe Gas Excitation in a PDP
A. Khorami, S. Ghanbari**
IRIB Univ. and Univ. of Appl. Sci., Iran
*Univ. of Essex, UK

PDPp - 3 Luminous Efficiency Increase through Uneven Surfaces in a Microcell Discharge of PDP
A. Khorami, S. Ghanbari**, M. Mofidi***
IRIB Univ., and Univ. of Appl. Sci., Iran
*Univ. of Essex, UK
**Univ. of Azad, Iran

PDPp - 4 PDP Barrier Rib by μ-Transfer Molding Using Functionally Reinforced Soft Mold and Demoldable UV Curable Paste
S. M. Ryu, D. Y. Yang, J. Y. So*, L. S. Park*
KAIST, Korea
*Kyungpook Nat. Univ., Korea

PDPp - 5 Optimizing Etching Parameters in High Density Plasma Etcher with Planar Coil
C. Wei, Y.-H. Chen*
Tatung Univ., Taiwan
*AUO, Taiwan

PDPp - 6 Electro-Optical Characteristics of Functional Layer in AC PDP
C. G. Son, Y. G. Han, Y. H. Kim, B. S. Cho, Y. J. Hong, K. B. Song, E. H. Choi
Kwangwoon Univ., Korea
PDPp - 7  Efficiency Improvement Characteristics Under Exhaust Method and Xe Gas Contents in AC PDP
Kyungpook Nat. Univ., Korea
Samsung SDI, Korea

PDPp - 8  Analysis of Power Reduction Effect in Applying Adiabatic Charge Circuit to PDP Driver Circuit
W.-F. Chen, Y. Sano
Toyo Univ., Japan

PDPp - 9  Improvement of Address Discharge Time-Lag with a Positive Scan-Bias in Negative Waveform
Dankook Univ., Korea
Myongji Univ., Korea

PDPp - 10 Study on Priming Ramp Discharge of Self-Priming Addressing Driving Scheme in AC PDPs
H. N. Kim, T. S. Kim, B. J. Shin
Sejong Univ., Korea

PDPp - 11 IR Emission Characteristics during Negative Reset Period in HD and Full-HD Resolution PDPs
S. J. Lee, W. H. Park, J. Kang
Dankook Univ., Korea

PDPp - 12 Color Image Data Processing with Single-Memory Group in PDPs
*Xi’an Jiaotong Univ., China
**Tech. Ctr. of IRICO Group, China

PDPp - 13 Recent Progress in Color Plasma-Sphere Displays
C. Wedding, E. Peters, J. Guy, O. Strbik, J. Davis, D. Wedding*
Imaging Syss. Tech., USA
*Univ. of Toledo, USA

16:40 - 17:20  TENJU
PDP1: Novel PDPs

Chair:  L. F. Weber, Consult., USA
Co-Chair:  M. Uchidoi, Panasonic, Japan
PDP1 - 1: *Invited* Extra Large Area Film Display with Plasma Tube Array Technology
16:40
Shinoda Plasma, Japan

PDP1 - 2: Progress on Development of Low Temperature Processing of Low-Cost ITO-Free PDP Using Soda-Lime-Silica Glass Substrate
17:00
Samtel Color, India

Author Interviews
18:00 – 19:00

Friday, December 11

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>9:00</td>
<td>PDP2: MgO</td>
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<tr>
<td>9:00</td>
<td>Investigation of MgO:Al,N Films on Electron Emission Properties</td>
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<tr>
<td>9:20</td>
<td>Discharge Property of MgO Thin Film as the Protecting Layer of PDPs</td>
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<tr>
<td>9:40</td>
<td>Analytical and Numerical Investigations of Diffusion-Sticking Processes in MgO Sputtering</td>
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Chair: H. Tolner, South East Univ., China
Co-Chair: H. Kajiyama, Hiroshima Univ., Japan

PDP2 - 1: Investigation of MgO:Al,N Films on Electron Emission Properties
9:00
M. Nishitani*,**, Y. Morita*, M. Terauchi*, Y. Yamauchi**
*Osaka Univ., Japan
**Panasonic, Japan
***NIMS, Japan

PDP2 - 2: Discharge Property of MgO Thin Film as the Protecting Layer of PDPs
9:20
L.-Y. Chen, Y. Tanaka, A. Ide-Ektessabi
Kyoto Univ., Japan

PDP2 - 3: Analytical and Numerical Investigations of Diffusion-Sticking Processes in MgO Sputtering
9:40
T. Tamakoshi, M. Ikeda, S. Ho, K. Suzuki
Hitachi, Japan

----- Break -----
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<td>*ULVAC, Japan</td>
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<td>**Hiroshima Univ., Japan</td>
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<tr>
<td>11:00</td>
<td>PDP3: High $\gamma$ Materials</td>
<td>Analysis of Xe Excimer Radiation in High $\gamma$ AC PDP with High Xe Contents</td>
<td>G. Uchida, N. Awaji, T. Akiyama*, S. Uchida**, H. Kajiyama, T. Shinoda</td>
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<td>*Advanced PDP Dev. Ctr., Japan</td>
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<td>**Tokyo Metropolitan Univ., Japan</td>
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<tr>
<td>11:20</td>
<td>PDP3: High $\gamma$ Materials</td>
<td>Air Stable High $\gamma$ Discharge Protective Layer Covered with Barrier Material</td>
<td>M. Hasegawa, S. Fukuta, K. Betsui</td>
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<td>Hitachi, Japan</td>
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<tr>
<td>11:40</td>
<td>PDP3: High $\gamma$ Materials</td>
<td>Discharge Properties and Chemical Stability of SrZrO Films</td>
<td>Y. Fukui, Y. Honda, Y. Yamauchi, M. Okafuji, M. Sakai, M. Nishitani, Y. Takata</td>
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<td>13:20</td>
<td>PDP4: Electron Emission Mechanism</td>
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----- Lunch -----
PDP4 - 1  
13:20  
Computational Study for Designing High $\gamma$ Protecting Layer: Development of Novel $\gamma$ Estimation Method Based on Quantum Chemistry

Tohoku Univ., Japan  
*Hiroshima Univ., Japan

PDP4 - 2  
13:40  
Dependence of Exoelectron Emission on Electric Field Transitionally Induced Across MgO Protective Layer

*Osaka Univ., Japan  
**Panasonic, Japan

PDP4 - 3  
14:00  
Trap Level Design of MgO Protective Layer for High-Speed Address Discharge in AC PDPs

S. Mori, T. Kusunoki, S. Ho, T. Miyake, Y. Mikami, M. Shiiki, K. Suzuki  
Hitachi, Japan

----- Break -----
Workshop on EL Displays and Phosphors

Wednesday, December 9

13:20 - 16:20 3F Foyer

Poster  PHp: Phosphors

PHp - 1 Luminescence and Compositional Analysis of $\text{Y}_3\text{Al}_5\text{O}_{12}:\text{Ce}^{3+}$ Films Fabricated by Pechini-Type Sol-Gel Deposition
J. R. Oh, E. K. Seo, Y. R. Do
Kookmin Univ., Korea

PHp - 2 Preparation of $\text{SrY}_2\text{S}_4:\text{Eu}$ Phosphors by Flux-Aided Solid-State Reaction Using Quartz Ampule
J.-H. Oh, Y.-R. Do
Kookmin Univ., Korea

PHp - 3 Synthesis and Luminescence Properties of a Green-Emitting CsSrPO$_4$:$\text{Eu}^{2+}$ Phosphor for near UV LED Excitation
D. S. Kang, H. S. Yoo, D. Y. Jeon
KAIST, Korea

PHp - 4 Synthesis of Monolith Using Tetramethylammoniumsilicate as Matrix Doped YAG:$\text{Ce}^{3+}$ Nanophosphor with Citric Acid by Glycothermal
K. H. Kun, P. B. Kyu, D. Y. Rag
Kookmin Univ., Korea

PHp - 5 Synthesis of Blue Emitting BaMgAl$_{10}$O$_{17}$:$\text{Eu}^{2+}$ Thin Film Phosphors by Sputtering Method
D. H. Kim, J. Y. Han, D. Y. Jeon
KAIST, Korea

PHp - 6 An Investigation of 3D Silica Photonic Crystal Effects on Luminescence Properties of $\text{YVO}_4:\text{Eu}^{3+}$ Thin Film Phosphor
J. Y. Han, H. S. Yoo, D. H. Kim, D. Y. Jeon
KAIST, Korea
PHp - 7  Green Emissions of M-Ga₂S₄ :Eu²⁺ (M: Zn, Ca, Sr) Thiogallates
Y. J. Kim, J. W. Kim*, J. S. Lee
Kyonggi Univ., Korea
*Epiplus, Korea

PHp - 8  Nitrido-, Oxonitrido- and Alumonitridosilicate Phosphor Materials Extending the Structural Boundaries
C. Hecht, M. Zeuner, W. Schnick
Univ. of Munich, Germany

PHp - 9  Cathodoluminescence of Small Particle Gd₂O₂S:Pr X-ray Phosphor
J. Silver, R. Withnall, T. Ireland, G. Fern, X. Yan
Brunel Univ., UK

PHp - 10 The Problems with Eu³⁺ Activated Red Emitting Phosphors with Blue LEDs to Generate White Light; Luminous Efficiency Measurements of Red Emitting Phosphors Based on the Formula Li(EuₓY₁₋ₓ)(MoO₄)ₓ(WO₄)₂₋ₓ
R. Stone, J. Silver, R. Withnall, G. Fern
Brunel Univ., UK

PHp - 11 Ceramic-Insulating-Type EL Devices Fabricated by Using Y₂O₃:Eu Nanophosphor
K. Ueda, J. Ishino, T. Miyata, T. Minami
Kanazawa Inst. of Tech., Japan

PHp - 12 Blue-Emitting Bi-Activated (La₂O₃-Ga₂O₃) Multicomponent Oxide Phosphor and EL Device Applications
J. Ishino, K. Sahara, H. Fukada, T. Miyata, T. Minami
Kanazawa Inst. of Tech., Japan

PHp - 13 PL and EL Characteristics in Other Activator-Co-Doped La₂O₃:Bi Phosphor Thin Films
K. Sahara, J. Ishino, H. Fukada, T. Miyata, T. Minami
Kanazawa Inst. of Tech., Japan

T. Uchida, S. Kawamura, M. Kobayashi, T. Satoh
Tokyo Polytech. Univ., Japan

Wednesday December 9
PHp - 15  The Development of Red Emitting ZnS:Cu,Cl,Mn,Te AC Powder Electroluminescent (ACPEL) Phosphor
*KAIST, Korea
**ETRI, Korea

PHp - 16  The Effects of Post-Annealing on the Crystallinity and the Optical Properties of SrGa2S4:Eu Nanoparticles
S. Hamaguchi, R. Takeuchi, T. Yamamoto, M. Kobayashi
Waseda Univ., Japan

PHp - 17  Preparation of Perovskite-Type Stannate Phosphors by Polymerized Complex Method
M. Shima, T. Nakamura, M. Yasukawa*, K. Ueda
Kyushu Inst. of Tech., Japan
*Kochi Nat. College of Tech., Japan

PHp - 18  Optical Degradation Characteristics of Sub-Micrometer Sized Eu-Complex Encapsulated by Sol-Gel Derived Silica Glass
S. Kato, T. Fukuda, E. Kin, Z. Honda, N. Kamata
Saitama Univ., Japan

PHp - 19  Luminance Uniformity of Organic-Dye-Dispersed Hybrid Powder-Type Electroluminescent Device
Y. Noguchi, Y. Masakura, T. Tamura, T. Uchida, T. Satoh
Tokyo Polytech. Univ., Japan

PHp - 20  DC-Driven Hybrid n-ZnO Nanocrystal/P-Pentacene Heterojunction EL Devices
H. Takeuchi, H. Kawasaki, T. Toyama, H. Okamoto
Osaka Univ., Japan

PHp - 21  EL Devices Using Inorganic Phosphor Synthesized by Vacuum Microwave System
N. Taguchi, U. Kobayashi*, Y. Uraoka*
Image Tech, Japan
*Nara Inst. of S&T, Japan
### PH1: Phoshors in General

- **PH1 - 1**: 9:00
  - Invited Impurity-Doped Semiconductor Nanocrystals as Novel Luminescence Materials
  - A. Ishizumi, Y. Kanemitsu*
    - Nara Inst. of S&T, Japan
    - *Kyoto Univ., Japan

- **PH1 - 2**: 9:30
  - Development of Calculation Method for Excited Energy Distribution in Photo-Excitation Equilibrium State
    - Tohoku Univ., Japan
    - *Hiroshima Univ., Japan

- **PH1 - 3**: 9:50
  - Development of Novel Nanoprobes for Biological Submicroscopic Multicolour Imaging
  - J. Silver, R. Withnall, T. Ireland, G. Fern, I. Morrison*, P. O'Toole*, P. Reip**, A. Godfrey**
    - Brunel Univ., UK
    - *Univ. of York, UK
    - **Intrinsiq Materials, UK

--- Break ---

### PH2: Phosphors for LEDs 1

- **PH2 - 1**: 10:40
  - Invited Nitrido- and Oxonitridosilicate Phosphor Materials -- A Synthetic and Structural Point of View
  - M. Zeuner, W. Schnick
    - Univ. of Munich, Germany

- **PH2 - 2**: 11:10
  - Luminescent Properties of Eu²⁺-Doped Ca-α-SiAlON Phosphors Synthesized by Spark Plasma Sintering
  - S.-W. Choi, S.-H. Hong
    - Seoul Nat. Univ., Korea
PH2 - 3
11:30
Stability Improvement in Eu-Complex Encapsulated by Sol-Gel Derived Silica Glass Using Catalyst

T. Fukuda, S. Yamauchi, Z. Honda, N. Kamata, N. Kijima*
Saitama Univ., Japan
*Mitsubishi Chem., Japan

PH2 - 4
11:50
Effect of Si-Codoping on Crystallographic and Photoluminescent Characteristics in CuAlS₂:Mn Red Phosphor for Near-UV Excitation

Y. Miyamoto, K. Ohashi, K. Ohmi, H. Yoshida*
Tottori Univ., Japan
*NEC Lighting, Japan

----- Lunch -----
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<tr>
<td>15:00 - 16:10</td>
<td>TENJU</td>
<td>PH4: Phosphors in EL and PDP</td>
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<td></td>
<td>Chair:</td>
<td>K. Wani, Tazmo, Japan</td>
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<td></td>
<td>Co-Chair:</td>
<td>K. Ohmi, Tottori Univ., Japan</td>
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</table>
|           | PH4 - 1                        | Invited Recent Development of Oxyfluoride Phosphors for Plasma Display Panels | T. Kunimoto, K. Ohmi*  
Tokushima Bunri Univ., Japan  
Tottori Univ., Japan |
| 15:30     | PH4 - 2                        | Low-Electric-Field-Driving Electroluminescence in ((Ca0.6Sr0.4)0.997Pr0.002)TiO3 and SrTiO3 Perovskite Films | H. Takashima, N. Miura*, Y. Inaguma**, K. Ueda***, M. Itoh****  
AIST, Japan  
*Meiji Univ., Japan  
**Gakushuin Univ., Japan  
***Kyushu Inst. of Tech., Japan  
****Tokyo Inst. of Tech., Japan |
| 15:50     | PH4 - 3                        | High Flexibility Powder ACEL Displays                     | R. Withnall, J. Silver, P. Harris  
Brunel Univ., UK |
|           | Author Interviews              | 18:00 – 19:00                                              |                                                                        |

**Friday, December 11**

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<tbody>
<tr>
<td>10:40 - 11:30</td>
<td>KAIHO</td>
<td>FED2/PH5: Phosphors for FEDs</td>
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<td></td>
<td>Chair:</td>
<td>M. Nakamoto, Shizuoka Univ., Japan</td>
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<td>Co-Chair:</td>
<td>H. Shimawaki, Hachinohe Inst. of Tech., Japan</td>
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</table>
|           | FED2/PH5 - 1                   | Invited Nanostructure Carbon for FED and White LED Application | Z. Sun, T. Feng, L. Pan, Z. Zhang, Y. Chen, L. Lin, S. Huang, P. Guo, H. Li  
East China Normal Univ., China |
FED2/PH5 - 2
11:10

Stimulated Emission from ZnO Micro Crystal with Cavity Structures for Field Emission Display

Y. Neo, Z. Xiao, G. Han*, M. Okada, T. Aoki, H. Mimura
Shizuoka Univ., Japan
*NIMS, Japan

Author Interviews
16:20 – 17:20

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

BANQUET
Wednesday, December 9, 2009
19:30–21:30
Room “TENZUI” (4F)
World Convention Center Summit
See page 9 for details

IDW ’10
The 17th International Display Workshops
December 1-3, 2010
Fukuoka International Congress Center
Fukuoka, Japan
http://www.idw.ne.jp/
Opening Remarks
9:00

M. Takai, Osaka Univ., Japan

FED1 - 1: Invited High Performance Carbon Nanotube Field Emitters for Backlight of Liquid Crystal Display
9:10
Y. Kim, H. Kim, J. Heo, I. Han, W. Cho*, B. Ju*, Y. Kim, J. Kim
Samsung Advanced Inst. of Tech., Korea
Korea Univ., Korea

FED1 - 2: Influence of CNT Diameters of Screen-Printed Cathode on Field Emission Characteristics
9:40
Osaka Univ., Japan

FED1 - 3: Development of Large-Size MIM-Cathode-Arrays for FEDs Application
10:00
Hitachi, Japan

----- Break -----
## FED2/PH5 - 1: Invited Nanostructure Carbon for FED and White LED Application

10:40

Z. Sun, T. Feng, L. Pan, Z. Zhang, Y. Chen, L. Lin, S. Huang, P. Guo, H. Li

*East China Normal Univ., China*

## FED2/PH5 - 2: Stimulated Emission from ZnO Micro Crystal with Cavity Structures for Field Emission Display

11:10

Y. Neo, Z. Xiao, G. Han*, M. Okada, T. Aoki, H. Mimura

*Shizuoka Univ., Japan*  
*NIMS, Japan*

----- Lunch -----
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<th>Institution</th>
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<tr>
<td>15:00</td>
<td>FED4 - 1</td>
<td>Fabrication of Titanium-Oxide Nanowires on Glass Substrate and Their Field-Emission Properties</td>
<td>F. Wakaya, T. Takikawa, M. Miki, C. Fukuyama, K. Murakami, S. Abo, M. Takai</td>
<td>Osaka Univ., Japan</td>
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<tr>
<td>15:40</td>
<td>FED4 - 3</td>
<td>Analysis of Field Emission Characteristics of Field Stabilized Liquid Cone</td>
<td>Y. Gotoh</td>
<td>Kyoto Univ., Japan</td>
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**Author Interviews**
16:20 – 17:20

**Sponsor:**
JSPS 158th Committee on Vacuum Nanoelectronics

**Supporting Organizations:**
Technical Group on Information Display, ITE
Technical Committee on Electronic Information Displays, Electronics Society, IEICE

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**LatinDisplay 2009**
November 16–19, 2009
Sao Paulo, SP, Brazil
Workshop on Organic LED Displays

Wednesday, December 9

13:20 - 14:40 TENYO

OLED1: OLED Material and Device

Chair: S. Sakai, Seiko Epson, Japan
Co-Chair: T. Wakimoto, Merck, Japan

OLED1 - 1: Invited Future Trend of AMOLED Technology
13:20
Samsung Mobile Display, Korea

OLED1 - 2: Invited Novel Transport Materials for High Performance OLEDs
13:45
E. Böhm, C. Pfllumm, F. Voges, H. Heil, A. Büsing, A. Parham, R. Fortte
Merck KGaA, Germany

OLED1 - 3: High Efficiency and Long-Lived Green Phosphorescent OLEDs
14:10
H. Yamamoto, V. Adamovich, B. Ma, J. Fiordeliso, S. Xia, R. Kwong, M. Weaver, J. Brown
Universal Display, USA

OLED1 - 4: Development of Novel Method Based on Quantum Chemistry Calculation for Analysis of Carreir Transfer in Light Emitting Layers
14:25
Tohoku Univ., Japan
^Univ. of Utah, USA

----- Break -----
OLED2 - 2: *Invited* Light Extraction Techniques in High Efficiency
15:25 200-lm/W Organic Light Emitting Devices Coupled with High-Refractive-Index Substrate
A. Mikami
Kanazawa Inst. of Tech., Japan

OLED2 - 3  Microplasma Current Switch and Its Characteristics
15:50 J. Y. Cai, M.-M. Kim, C.-H. Moon, S. Yi
Hoseo Univ., Korea

OLED2 - 4  Increasing PMOLED Efficiency by Decimating the Charging/Discharging Power Loss
16:05 C. Xu, C. Codrea, M. Buczek
Saarland Univ., Germany

----- Break -----

Chair: A. Mikami, Kanazawa Inst. of Tech., Japan
Co-Chair: T. Inoue, TDK, Japan

OLED3/ AMD3 - 1  An OLED-on-Silicon Pixel Structure for Microdisplays
16:40 B.-C. Kwak, H. Kim, H.-S. Lim, O.-K. Kwon
Hanyang Univ., Korea

OLED3/ AMD3 - 2  A Low Mask Count Top Gate Process for AMOLED Displays Based on Amorphous or Polymorphous Silicon
16:55 P. Schalberger, H. Baur, T. Buergstein*, N. Fruehauf
Univ. Stuttgart, Germany
Robert Bosch, Germany

OLED3/ AMD3 - 3  Three-Dimensional Organic Field-Effect Transistors
17:10 M. Uno**, K. Nakayama*, J. Takeya*
*Osaka Univ., Japan
**TRI-Osaka, Japan

Author Interviews
18:00 – 19:00
### Thursday, December 10

#### AMD4/OLED4: AM-OLED (2)

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<th>Speaker(s)</th>
<th>Organization</th>
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<tbody>
<tr>
<td>9:00</td>
<td>Invited</td>
<td>Top Emitting White OLED Technology for Small and Medium-Sized AMOLED Displays</td>
<td>D. Peng, R. Nishikawa</td>
<td>TPO Displays, Taiwan</td>
</tr>
<tr>
<td>9:50</td>
<td>Sample and Hold DeMUX Method for Threshold Voltage Compensation Pixel Circuits of AMOLEDs</td>
<td>S. Choi, C. Kang, S. Hwang, K. Kim, B. Kim</td>
<td>Samsung Mobile Display, Korea</td>
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#### OLED5: OLED Lighting

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<th>Speaker(s)</th>
<th>Organization</th>
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<tr>
<td>10:40</td>
<td>Invited</td>
<td>High-Performance and High-CRI OLEDs for Lighting and Their Fabrication Processes</td>
<td>T. Komoda, H. Tsuji, T. Nishimori, T. Iwakuma*, M. Yamamoto**</td>
<td>Panasonic Elec. Works, Japan</td>
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<td>Tazmo, Japan</td>
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<tr>
<td>11:05</td>
<td>High-Performance White OLEDs for Lighting Application</td>
<td>H. Tsuji, N. Ito, Y. Matsuhisa, S. Houzumi, N. Ide</td>
<td>Panasonic Elec. Works, Japan</td>
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<tr>
<td>11:20</td>
<td>OLED5 - 3</td>
<td>Visualization Technique and Evaluation of Meniscus Shape in Slit Coat Method for Uniform Coating of Nano-Meter Film under Atmospheric Environment</td>
<td>T. Kawaguchi, Y. Ikagawa, M. Yamamoto</td>
<td>Tazmo, Japan</td>
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<tr>
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<td>OLEDp - 2</td>
<td>Long Lifetime and High Efficiency Electron Transporting Materials for Green Phosphorescent Emitters</td>
<td>H.-L. Huang, T.-C. Chao, M.-R. Tseng</td>
<td>ITRI, Taiwan</td>
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<td>OLEDp - 3</td>
<td>OXD Derivative as the Host Material of the Blue Phosphorescent OLED</td>
<td>C.-L. Huang, C.-H. Hsiao, J.-H. Lee, C.-C. Yang, C.-C. Chao, M.-K. Leung, S.-T. Yeh*</td>
<td>Nat. Taiwan Univ., Taiwan, ITRI, Taiwan</td>
</tr>
<tr>
<td></td>
<td>OLEDp - 5</td>
<td>All Wet Processed OLED Directly Electron Injection from Al Cathode with New n-Doped ETL Material</td>
<td>Y. Goto, M. Noto*</td>
<td>Kyushu Elec. Power, Japan, Dyden, Japan</td>
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<td>OLEDp - 5</td>
<td>All Wet Processed OLED Directly Electron Injection from Al Cathode with New n-Doped ETL Material</td>
<td>Y. Goto, M. Noto*</td>
<td>Kyushu Elec. Power, Japan, Dyden, Japan</td>
</tr>
</tbody>
</table>
OLEDp - 7  Mechanistic Analysis for Low-Voltage and Long-Lifetime Operation of the OLEDs with New Electron Transport Materials
Tosoh, Japan
*Sagami Chem. Res. Ctr., Japan

OLEDp - 8  Determination of Localized-State Distributions in Polyfluorene-Based Light-Emitting Layer by Impedance Spectroscopy
H. Hase, T. Okachi, T. Nagase, T. Kobayashi, H. Naito
Osaka Pref. Univ., Japan

OLEDp - 9  Optimization of SLS Based-TFT Performance for AMOLED
Samsung Mobile Display, Korea

OLEDp - 10  Effect of the Triplet Energy and Exciton Blocking Property of the Hole-Blocking Layer of PHOLEDs
Y. W. Park, Y. M. Kim, J. H. Choi, T. H. Park, J. W. Jeong, B. K. Ju
Korea Univ., Korea

OLEDp - 11  High Contrast Blue Organic Light-Emitting Diodes Using Inorganic Multi-Layer of Al and ZnSe
Hoseo Univ., Korea

OLEDp - 12  Determination of Charge Carrier Mobility in Tris(8-hydroxyquinoline) Aluminum (Alq3) by Means of Impedance Spectroscopy (IS) Measurements
S. Ishihara*,**, T. Okachi*, H. Naito***
*Osaka Pref. Univ., Japan
**The Res. Inst. for Molecular Elect. Devices, Japan
***Hitachi, Japan

OLEDp - 13  Efficiency Improvement of Phosphorescent White Organic Light-Emitting Devices Using Codoped Method
Nat. Taiwan Univ., Taiwan
*ITRI, Taiwan
OLEDp - 14 Deposition of Thin Film by RF-Plasma Polymerization Using Monomer of Benzene or Its Derivatives for Organic Light Emitting Device
R. Koyama, S. Ojiro, Y. Sato, S. Yoshikado
Doshisha Univ., Japan

OLEDp - 15 Polarized OLED on a Flexible Optical Giant Birefringent Optical (GBO) Substrate
Kwangwoon Univ., Korea

OLEDp - 16 Large-Area OLED Lighting Fabricated by Screen Printing
Sung Kyun Kwan Univ., Korea

OLEDp - 17 Efficient Electrospray Deposition of Organic Thin Film Using Cylindrical Acryl Pipe
H. Asaki, T. Asano, T. Fukuda, Z. Honda, N. Kamata
Univ. of Saitama, Japan

OLEDp - 18 Direct Encapsulation of Heat-Dissipation Layer on White Organic Light-Emitting Diode by Atomic Layer Deposition
H. Yang
Nat. Taipei Univ. of Tech., Taiwan

OLEDp - 19 Patterning of Organic Insulator Using Self-Assembled Monolayers for Organic Light-Emitting Diodes by Micro-Contact Printing
Korea Univ., Korea
KAIST, Korea

OLEDp - 20 Photo-Thermal Deflection Spectroscopy for Surface Study of Laser Irradiated Donor Plate
K. Lee, K. Lee, J. H. Kwon, L. S. Park, J. Yi
Yeungnam Univ., Korea
Kyungpook Univ., Korea
OLEDp - 21 Organic Light-Emitting Diodes with Contact-Printed Emissive Layer
Nat. Tsing Hua Univ., Taiwan

Author Interviews
18:00 – 19:00

EVENING GET-TOGETHER WITH WINE
Tuesday, December 8, 2009
18:00–20:00
Room “FOUNTAIN” (2F)
World Convention Center Summit
(Sponsored by Merck Ltd., Japan)
See page 9 for details

EXHIBITION
12:00–18:00 Wednesday, Dec. 9, 2009
10:00–18:00 Thursday, Dec. 10, 2009
10:00–14:00 Friday, Dec. 11, 2009
4F Foyer
World Convention Center Summit
Free admission with your registration name tag.
<table>
<thead>
<tr>
<th>3Dp - 1</th>
<th>3D/Hyper Realistic Systems as Futuristic Facades</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. A.-Moussallam</td>
<td></td>
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<tr>
<td>Helwan Univ., Egypt</td>
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<thead>
<tr>
<th>3Dp - 2</th>
<th>Evaluation of 3D Displays in Terms of Literacy Learning</th>
</tr>
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<tbody>
<tr>
<td>H. Ikeshita(Yamazoe), T. Kawai, M. Matsumoto*</td>
<td></td>
</tr>
<tr>
<td>Waseda Univ., Japan</td>
<td></td>
</tr>
<tr>
<td>*Nat. Ctr. for Child Health &amp; Dev., Japan</td>
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<tr>
<th>3Dp - 3</th>
<th>Stereoscopic View Image Generation Based on the Horopter</th>
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</thead>
<tbody>
<tr>
<td>J.-H. Jung, Y. Kim, S. Kim, B. Lee</td>
<td></td>
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<tr>
<td>Seoul Nat. Univ., Korea</td>
<td></td>
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<thead>
<tr>
<th>3Dp - 4</th>
<th>Using Psychometric Method to Find the Optimal Disparity on Stereoscopic Display System</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Nat. Central Univ., Taiwan</td>
<td></td>
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<tr>
<td>**Nat. Taiwan Normal Univ., Taiwan</td>
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<tr>
<td>**Chunghwa Picture Tubes, Taiwan</td>
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<tr>
<th>3Dp - 5</th>
<th>Using Large-Size 2D Displays to Create 3D Hyper-Realistic See-Through Experiences</th>
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<tbody>
<tr>
<td>C. Yuan</td>
<td></td>
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<td>Sharp Labs. of America, USA</td>
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<tr>
<th>3Dp - 6</th>
<th>Multispectral Polarization Analysis of Circular Polarizer Stereoscopic 3D Display</th>
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<tbody>
<tr>
<td>P. Boher, T. Leroux, T. Bignon, V. Collomb-Patton</td>
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<tr>
<td>ELDIM, France</td>
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<thead>
<tr>
<th>3Dp - 7</th>
<th>Evaluation Method of Residual Image Caused by Liquid Crystal Response Delay for Frame-Sequential Stereoscopic Display</th>
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<tbody>
<tr>
<td>A. Sakai, A. Hayashi, T. Kometani, H. Ito</td>
<td></td>
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<td>Eizo Nanao, Japan</td>
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</table>
Thursday December 10

3Dp - 8 A Glasses-Free Multi-View 3D Monitoring System
S.-C. Yen, T.-C. Shen
Chunghwa Picture Tubes, Taiwan

3Dp - 9 Distortion in Liquid-Crystal Varifocal Lens for Volumetric Three-Dimensional Display
K. Kikuchi, T. Inoue, H. Yamamoto, S. Suyama
Univ. of Tokushima, Japan

3Dp - 10 Continuous Control of Depth of Field Using Stereoscopic Lens-Tilt Imaging
N. Kaneko, S. Suyama, H. Yamamoto
Univ. of Tokushima, Japan

3Dp - 11 Converting 2D Outdoor Photographs to Stereoscopic 3D Images Based on Image Analysis
P.-L. Sun, J.-Y. Huang
Nat. Taiwan Univ., Taiwan
Shih Hsin Univ., Taiwan

3Dp - 12 Optical Ray Control for Orthoscopic/Pseudoscopic Image Conversion
J. H., K. H., S.-W. Min*, B. Lee
Seoul Nat. Univ., Korea
Kyung Hee Univ., Korea

3Dp - 13 High Quality Autostereoscopic 3D Display
Chung Hwa Picture Tubes, Taiwan

3Dp - 14 High Resolution Autostereoscopic 3D Projection Display with Spatially Divided Iris Plane Shutter
T. Ishinabe, T. Kawakami, N. Takahashi, T. Uchida
Tohoku Univ., Japan

3Dp - 15 GPU Implementation of Signal Processing in a 3D Image System with Multi Vision Imaging and Wavefront Reconstruction
T. Kurahashi, K. Nitta, O. Matoba
Kobe Univ., Japan
### Opening Remarks

9:00

*I. Yuyama, Utsunomiya Univ., Japan*

---

### 3D1: 3D Display Image

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
</tr>
</thead>
</table>
| 9:05          | Invited 3D Television: A Real-Time Imaging System Based on Integral Photography | *M. Okui*, *J. Arai*, *M. Kawakita*, *F. Okano*<sup>**</sup>  
<sup>*NHK, Japan</sup>  
<sup>**NHK Eng. Service, Japan</sup> |
|               | Invited 3D-TV: Are Two Images Enough? How Depth Maps can Enhance the 3D Experience | *C. Vazquez*, *W. Tam*, *F. Speranza*  
<sup>Commun. Res. Ctr., Canada</sup> |
| 9:45          | Switchable 3D/2D Display Using LC GRIN Lenticular Lens | *C. H. Chiu*, *C. W. Chen*, *C. H. Shih*, *W. M. Huang*  
<sup>AU Optronics, Taiwan</sup> |
| 10:05         | A Novel Real-Time 2D to 3D Conversion Technique Using Depth Based Rendering | *M.-C. Kao*, *T.-C. Shen*  
<sup>Chunghwa Picture Tubes, Taiwan</sup> |

**** Break ****

### 3D2: 3D Display & Acquisition

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>10:40</td>
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</table>
Invited Ray-Based Acquisition and Reproduction of 360-degree 3D Images

T. Yendo, T. Fujii*, M. P. Tehrani, M. Tanimoto
Nagoya Univ., Japan
*Tokyo Inst. of Tech., Japan

Viewing Zone Interpolation for Multi-View 3D Displays Using Depth Fused 3D (DFD) Effect

M. Date, Y. Andoh, H. Takada, Y. Ohtani
NTT, Japan

An Interactive Zoetrope for the Animation of Solid Figurines and Holographic Projections

L. Smoot, K. Bassett
Disney Res., USA

Robust Pattern Matching Paradigm for Multi-View Imaging

S. Gurbuz, S. Yano
NICT, Japan

----- Lunch -----
3D3 - 4  An Image Processing Method for the Elimination of the Ghost Image and Improvement of the Image Quality in Stereoscopic Display
M.-C. Tsai, C.-W. Chen, C.-H. Shih, W.-M. Huang
AU Optronics, Taiwan

----- Break -----

15:00 - 16:20  ZUIYO

3D4: 3D Display Performance (2)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<td>Japanese Ergonomics Nat. Committee, Japan</td>
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<td>*3NEC LCD Techs., Japan</td>
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<td>*4Seiko Epson, Japan</td>
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<td>*5Toshiba, Japan</td>
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<td>*6Hitachi, Japan</td>
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<td>*10Mitsubishi Elec., Japan</td>
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<td>*113D Consortium, Japan</td>
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<td>*12Toshiba Mobile Display, Japan</td>
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<td>*13YOSH Consultancy, Japan</td>
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<td>Hitachi, Japan</td>
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<tr>
<td>15:40</td>
<td>3D4 - 3</td>
<td>Polarized Based Stereoscopic 3D Display Characterization Using Fourier Optics Instrument and Computation in the Observer Space</td>
<td>P. Boher, T. Leroux, V. Collomb-Patton, T. Bignon</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>ELDIM, France</td>
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</table>
Stereoscopic Viewing Space Analysis Based on Optical Measurements for Two-View and Multi-View Stereoscopic Displays


*Japanese Ergonomics Nat. Committee, Japan
*2Seiko Epson, Japan
*3Sanyo Elec., Japan
*4NEC LCD Techs., Japan
*5Hitachi, Japan
*6NTT DOCOMO, Japan
*7Mitsubishi Elec., Japan
*8Toshiba Mobile Display, Japan
*9Toshiba, Japan
*10AIST, Japan

Author Interviews
16:20 – 17:20
Wednesday, December 9

Workshop on
Applied Vision and Human Factors

Wednesday, December 9

13:20 - 14:40 ZUIYO

VHF1: Moving Image Quality

Chair: T. Kurita, NICT, Japan
Co-Chair: T. Wake, Kanagawa Univ., Japan

VHF1 - 1 Perceived Sharpness for Different Moving-Edge Profiles on LCDs
13:20

X. Li, W. Song, Y. Zhang, G. San, K. Teunissen*,
I. Heynderickx**
Southeast Univ., China
*Philips Consumer Lifestyle, the Netherlands
**Philips Res. Labs. & Delft Univ. of Tech., the Netherlands

VHF1 - 2 Analysis of Factors Affecting Moving Picture Performance of Display Considering Fast Motion and High-Resolution Content
13:40

I. Kawahara*,**
*Panasonic, Japan
**Advanced PDP Dev. Ctr., Japan

VHF1 - 3 Correlation of Color Break-up and MPRT in the Flat Panel Display
14:00

J. Hanne, S. A. Park, J. W. Jang, M. J. Lim, H. Shin
LG Display, Korea

VHF1 - 4 Optimal Overdriving Look-up Table Based on the Perceived Image Quality for The LCD TV Module
14:20

J.-H. Hahm, H.-I. Baek, J.-W. Kwon, M.-C. Byun,
LG Display, Korea

----- Break -----
VHF2 - 1: *Invited* High Dynamic Range Image Appearance  
15:00  
A. Yoshida  
Sharp, Japan

VHF2 - 2  
15:30  
Novel Method for Digital Image Enhancement  
M. Chen, W. Zhang, G. Qiu*  
LED Syss., Hong Kong  
*Univ. of Nottingham, UK

VHF2 - 3  
15:50  
Study of Improving the Gradation Quality of Displays Receiving Noise-Added Signals  
N. Nakano, A. Nagase, M. Asamura, J. Someya, H. Sugiiura  
Mitsubishi Elec., Japan

VHF2 - 4  
16:10  
Display Panel Measurement Using Dark Sphere and Spectrophotometer Calibration by a Double Integrating Sphere Reference Light Source  
*Univ. of Tokyo, Japan  
**Sony, Japan

----- Break -----

Chair: T. Wake, Kanagawa Univ., Japan  
Co-Chair: K. Tomizawa, Sharp, Japan

VHF3 - 1  
16:40  
Comparison in Sharpness Evaluation Performance between Improved Conventional Methods and Cooperative Vision-Model-Based Method  
T. Matsui, T. Fujita  
Gunma Univ., Japan

VHF3 - 2  
17:00  
Effect of Contrast Ratio Angular Profile on Perceived Contrast of LCDs  
LG Display, Korea
**Optimal Value and Allowable Limits of Surface Haze and Illuminance**

I. Takahashi**, G. Hamagishi*, N. Umedu*, H. Haga**
M. Uchido*, K. Mashitani*, T. Miyazaki*, N. Watanabe*
Y. Nakano*

*Japanese Ergonomics Nat. Committee, Japan
**JEITA, Japan

**Investigation of Legibility and Subjective Visual Fatigue in Electronic-Paper Displays under Low Ambient Illumination**

Y.-T. Lin, S.-L. Hwang, S.-C. Jeng*, R. Koubek**

Nat. Tsing Hua Univ., Taiwan
*Nat. Kaohsiung Univ. of Appl. Scis., Taiwan
**Pennsylvania State Univ., USA

**Correction of Color-Matching Functions Using Genetic Algorithm and Gaussian Approximation: Discussion of Individuality**

S. Ozaki, G. Ohashi, Y. Shimodaira

Shizuoka Univ., Japan

**Color Perception Characteristics for Spectrally Mixed Colors in the Mesopic Condition**

N. Ishikawa, G. Ohashi, Y. Shimodaira, Y. Shibata*
H. Serizawa*

Shizuoka Univ., Japan
* Koito Manufacturing, Japan

**Study of Color Conversion Based on Matrix Switching Method Exhibiting on the Three-Primary Color LCD**

B. S. Huang, Y. C. Wang, C. R. Sheu, Y. G. Fuh

Nat. Cheng Kung Univ., Taiwan
VHFp - 4 High Efficient Gamut Mapping in xvYCC Space for Wide Gamut Displays
P.-L. Sun
Nat. Taiwan Univ., Taiwan

VHFp - 5 Investigation of Image Quality Evaluation Using Psychophysical Methods
Y.-Y. Lai, C.-M. Tsai*, S.-S. Guan*
Taiwan TFT-LCD Assn., Taiwan
*Nat. Yunlin Univ. of S&T, Taiwan

VHFp - 6 Estimation of Overall Image Quality with the Mahalanobis-Taguchi System Focusing on Gamma, Maximum Luminance and Minimum Luminance
K. Sawada, G. Ohashi, T. Hoshino*, Y. Shimodaira
Shizuoka Univ., Japan
*Hitachi, Japan

VHFp - 7 Ambient Contrast Ratio Measurement by Using Sampling Integrating Sphere
S.-Y. Pan, S.-C. Lin, L.-C. Lin, K.-S. Wan, C.-C. Kao, P.-C. Yeh, C.-Y. Lee
AU Optronics, Taiwan

VHFp - 8 System Design of Ambient Light Compensation for Flat Panel TV
J.-C. Huang, H.-S. Chen, J.-F. Lee
Nat. Taiwan Univ., Taiwan

VHFp - 9 Mean Based Dynamic Range Separated Histogram Equalization for Infrared Imaging System
G.-H. Park, J.-S. Youn
Samsung Thales, Korea

VHFp - 10 Using Simulation and Human Vision Evaluation to Illustrate Why “G-center” Pixel Unit Exhibiting the Best Image Quality on a Stripe Sub-Pixel LCD
Y. C. Wang, Y. C. Lee, C. R. Sheu
Nat. Cheng Kung Univ., Taiwan

VHFp - 11 A Lightweight Wide HMD by Separated Three Displays for an Aging Society
T. Miyachi, S. Watanabe, J. Jantr, T. Suzuki*
Tokai Univ., Japan
*Kanagawa Pref. Hiratsuka School for the Visually Impaired, Japan
VHFp - 12 Brightness Uniformity and Color Uniformity Equalizing Method of LCD Panel Modules
Y. Bamba, Y. Suzuki, M. Kita
EIZO Nanao, Japan

VHFp - 13 Mura Grade Evaluation of Electronic Displays by Visual Contrast
Y. Morimoto, Y. Takagi, T. Asano, J. Yao*, W. Liu*
Hiroshima Inst. of Tech., Japan
*First, Japan

VHFp - 14 Quantification of Hot Spot Mura of LED Backlight Based on Visual Contrast Thresholds
W.-J. Chang, Y.-P. Lan, H.-H. Hsu*
ITRI, Taiwan
*Keio Univ., Japan

VHFp - 15 A Quantitative Evaluation Method for Indistinct Mura of LED Backlight
Y. Masakura, T. Tamura, K. Nagamine*, S. Tomioka*, M. Ueda*, Y. Shimpuku*
Tokyo Polytech. Univ., Japan
*Sony, Japan

VHFp - 16 Human Preference Based Metrics for Video Quality on LCD Displays
S.-T. Kuo, K.-P. Chen, K.-N. Wu
ITRI, Taiwan

VHFp - 17 Studies of Human Vision Model on Image Recognition
B.-W. Wu, Y.-C. Fang*, L.-S. Chang, S.-F. Wang*
Yuanpei Univ., Taiwan
*Kaohsiung First Univ. of S&T, Taiwan

----- Lunch -----
Invited Extending Applications of Multi-Primary Color LCDs
Sharp, Japan

Image-Dependent Skin-Color Correction Technology Based on Skin-Based Color Space
Y. C. Hsu, H. S. Chen
Nat. Taiwan Univ., Taiwan

Memory Color Detection and Enhancement for Improved Television Picture Quality
H. Pan, X. Xu, J. Speigle, S. Daly
Sharp Labs. of America, USA

----- Break -----
16:50 - 17:30  
**KAIHO**

**VHF6: Video System and Image Quality**

Chair: Y. Shimodaira, Shizuoka Univ., Japan  
Co-Chair: K. Masaoka, NHK, Japan

**VHF6 - 1**  
16:50  
Flicker Visibility Dependence on Viewing Distance and Light-Emission Duty Ratio in a TV Field  
*M. Ogawa, T. Shiga*  
*Univ. of Electro-Commun., Japan*

**VHF6 - 2**  
17:10  
Subjective Quality Assessment for Temporal Down-Sampling High Frame-Rate Video  
*Y. Bandoh, S. Takamura, H. Jozawa*  
*NTT, Japan*

**Author Interviews**  
18:00 – 19:00

**Supporting Organizations:**  
Technical Group on Information Display, ITE  
Technical Committee on Electronic Information Displays, Electronics Society, IEICE

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**Late-News Papers**

Due September 25, 2009  
Submit a two-page camera-ready manuscript via IDW website:  
http://www.idw.ne.jp/latenews.html

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**ASID09**

October 7–10, 2009  
Guangzhou, China
### Workshop on Projection and Large-Area Displays, and Their Components

**Thursday, December 10**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>9:00 - 10:20</td>
<td>LAD1: Digital Cinema and Signage</td>
<td>A Large Ultra High Resolution Tiled Display System: Architecture, Technologies, Applications, and Tools</td>
<td>S. Deshpande, C. Yuan, S. Daly, I. Sezan Sharp Labs. of America, USA</td>
<td>TENYO</td>
</tr>
<tr>
<td>10:40 - 12:15</td>
<td>LAD2: Pico Projectors</td>
<td>Invited The Requirements of Cellular Phone Embedded Small Projector, and the Use Scene</td>
<td>M. Ota, M. Murata, T. Kaneda, M. Yasuo NTT DOCOMO, Japan</td>
<td>TENYO</td>
</tr>
</tbody>
</table>

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**Chair:** E. Buckley, Light Blue Optics, USA  
**Co-Chair:** H. Kanayama, SANYO, Japan

**LAD1 - 1**  
9:00  
A Large Ultra High Resolution Tiled Display System: Architecture, Technologies, Applications, and Tools  
S. Deshpande, C. Yuan, S. Daly, I. Sezan Sharp Labs. of America, USA

**LAD1 - 2**  
9:20  
High Power Discharge Lamp for Large Screen Projection Display  
H. Ogawa, R. Obama, T. Ogura Panasonic, Japan

**LAD1 - 3**  
9:40  
Ultra-Short Throw Distance Laser Light Source Projector with Highest Brightness  

**LAD1 - 4**  
10:00  
Investigations of a Color Gamut Required for Preferred Color Reproduction by Using a Super-Wide Color Gamut Projector  
M. Kanai, T. Kitano*, A. Minabe*, K. Fukasawa**, T. Abe* Seiko Epson, Japan  
*Shinshu Univ., Japan  
**Epson R&D, USA

----- Break -----
LAD2 - 2: **Invited** Challenges with Embedding a Pico Projector into a Mobile Phone
11:05
J. Dennis
Texas Instrs., USA

LAD2 - 3: **Invited** 3M Mobile Projection Technologies
11:30
3M, Singapore
*3M, USA
**3M APAC, Japan

LAD2 - 4: Low Component Count Waveguide-Based Pico-Projector for Cell-Phone Applications
11:55
K. Li
Wavien, USA

----- Lunch -----
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Institution(s)</th>
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<tbody>
<tr>
<td>16:00</td>
<td>Consideration on the Principle of Speckle Noise Observed on Laser Projection Displays</td>
<td>Y. Kuratomi, T. Kawakami, K. Sekiya, H. Sato, B. Katagiri, Y. Suzuki, T. Uchida</td>
<td>Tohoku Univ., Japan</td>
</tr>
</tbody>
</table>

----- Break -----
Direct Measurement of Vcom Voltage in LC Panels

D. Cuypers, A. V. Calster*, H. D. Smet*
IMEC vzw, Belgium
Ghent Univ., Belgium

White LED Lamp with Recycling for Projection Applications

K. Li
Wavien, USA

Author Interviews
18:00 – 19:00

Friday, December 11

9:00 - 12:00 3F Foyer
Poster LADp: Projection

The Illumination System Design of Integrated Screen 3D Display Technology

ITRI, Taiwan

A Single Panel LCoS Microdisplay for Mobile Projectors

Daegu Gyeongbuk Inst. of S&T, Korea
*Kumoh Nat. Inst. of Tech., Korea

Supporting Organizations:
Technical Group on Information Display, ITE
Laser Display Technology Research Group, Optical Society of Japan

SID 2010
International Symposium, Seminar and Exhibition
May 23–28, 2010
Seattle, Washington, USA
# Workshop on Electronic Paper

**Wednesday, December 9**

## Opening

**13:20 - 13:25**

**TENGYOKU**

**Opening**

**Opening Remarks**

**13:20**

*A. Suzuki, Ricoh, Japan*

## EP1: Electrophoretic Displays

**13:25 - 14:40**

**TENGYOKU**

**Chair:** A. Suzuki, Ricoh, Japan  
**Co-Chair:** M. Tsuchiya, E Ink, Japan

**EP1 - 1: Invited**

**History of Electrophoretic Displays and Proposal of a Novel Cell Structure for Lateral Particle Movement Display Devices**

**13:25**

*I. Ota*

*Free, Japan*

**EP1 - 2: Invited**

**Bright Color Electronic Paper Technology and Applications**

**13:50**

*K.-M. Lenssen, M. van Delden, M. Mueller, L. Stofmeel*

*Philips Res., the Netherlands*

**EP1 - 3: Invited**

**Progress in Subtractive Color Electrophoretic Displays**

**14:15**

*A. Henzen*

*iRex Techs., the Netherlands*

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

## EP2: Particles Moving Displays

**15:00 - 16:05**

**TENGYOKU**

**Chair:** H. Arisawa, Fuji Xerox, Japan  
**Co-Chair:** M. Higuchi, NIMS, Japan

**EP2 - 1: Invited**

**Challenge to Color Electronic Paper Based on Particle Control Technologies**

**15:00**

*T. Kitamura*

*Chiba Univ., Japan*
Wednesday December 9

EP2 - 2
15:25
Monolayer Rotating Ball Display
H.-S. Lee, H.-Y. Cha, S. Lee, J.-B. Kwak, K. Chae,
Samsung Electro-Mechanics, Korea

EP2 - 3
15:45
Dynamical Behaviors of Charged Particles in
Horizontal Switching Electrophoretic Cell
J.-H. Yeo, S.-W. Kim, G.-D. Lee
Dong-A Univ., Korea

----- Break -----

EP3 - 1
16:40
300 cm-Length Flexible Cholesteric Liquid Crystal
Banner’s Metal Electrode Fabricated by Screen
Printing Technology
S. H. Lee, C. W. Wu, J. H. Liao, Y. Y. Chang
ITRI, Taiwan

EP3 - 2
17:00
Color Laser-Addressing Simple Structure Roll to Roll
Electronic Papers
H.-Y. Chen, C.-C. Liang, M.-H. Hsieh, C.-L. Chin,
C.-K. Ho, J.-Y. Su
ITRI, Taiwan

Author Interviews
18:00 – 19:00

BANQUET
Wednesday, December 9, 2009
19:30–21:30
Room “TENZUI” (4F)
World Convention Center Summit
See page 9 for details
EP4 - 1:  Invited  Bistable Electrowetting Displays with High Reflectivity and Large Aperture Ratio  
9:00  
Pforzheim Univ., Germany  
* Bartels Mikrotechnik, Germany  
** Advanced Display Thec., Germany  

EP4 - 2  
9:25  
Device Application of Organic-Metallic Hybrid Polymers for Electronic Paper  
M. Higuchi***  
*NIMS, Japan  
** JST, Japan  

EP4 - 3  
9:45  
High Speed Passive Matrix Electronic Paper Using Leuco Dye  
Tokai Univ., Japan  

----- Break -----  

EPp - 1  
10:00  
Electrowetting-Based Optical Deflector  
H.-H. Chen*, C.-C. Lin*, Y.-T. Li**, C.-C. Fu**  
* ITRI, Taiwan  
** Nat. Tsing-Hua Univ., Taiwan  

EPp - 2  
10:20  
Analysis of the Microfluid Movement Behavior under Different Driving Scheme in Electro-Wetting Display  
ITRI, Taiwan  
* Nat. Chiao Tung Univ., Taiwan
EPP - 3  New Electrochromic Polymer for Electronic Paper
Y. Kondo, T. Ootake, T. Hirofumi
Kuraray, Japan

EPP - 4  Preparation of the Narrow-Dispersed Microcapsules Containing Electronic Ink: Influence of Surfactant and Stirring Rate
*Elect. & TeleCommun. Res. Inst., Korea
**Pusan Nat. Univ., Korea

EPP - 5  A Novel Electronic Ink Using the Core-Shell Type Particles Prepared in a Non-Polar Media
H. Yoo*,**, C. Kim*, K. Suh*, S. Kang*, S. Park**
*Elect. & TeleCommun. Res., Korea
**Pusan Nat. Univ., Korea

EPP - 6  Measurement of Short-Term Memory of Human for Studying the Common Difficulty of Working on a Display
S. Inoue, M. Omodani
Tokai Univ., Japan

EPP - 7  An Active Matrix Polymer Cholesteric Liquid Crystal Flake Display
***Rochester Inst. of Tech., USA
**Univ. of Rochester, USA
***Univ. of Arizona, USA

Author Interviews
18:00 – 19:00

Friday, December 11

9:00 - 10:25  TENGYOKU

EP5: Driving Methods for Electronic Paper

Chair: N-S. Roh, Samsung Elect., Korea
Co-Chair: G. Zhou, Philips Res., the Netherlands

EP5 - 1: Invited  A Breakthrough Controller IC for Active Matrix EPD Displays
9:00
Y. S. Low
Seiko Epson, Japan
EP5 - 2  9:25  A Novel Asymmetric Driving Scheme for Rich Gray Levels in Driving a Large-Area High-Resolution Electrowetting Display
ITRI, Taiwan

EP5 - 3  9:45  A Dynamic Gray-level Driving System for Hot-Pluggable Roll to Roll Cholesteric LCD
ITRI, Taiwan

EP5 - 4  10:05  Speeding up Passive-Matrix Driven Electronic Paper Update by Shrinking Multiline Addressing Data
S. Kaneko, M. Asakawa, R. Hattori, Y. Masuda*, N. Nihei*, A. Yokoo*, S. Yamada*
Kyushu Univ., Japan
Bridgestone, Japan

Author Interviews
16:20 – 17:20

Supporting Organization:
The Imaging Society of Japan

EXHIBITION
12:00–18:00  Wednesday, Dec. 9, 2009
10:00–18:00  Thursday, Dec. 10, 2009
10:00–14:00  Friday, Dec. 11, 2009

4F Foyer
World Convention Center Summit
Free admission with your registration name tag.
### Workshop on MEMS for Future Displays and Related Electron Devices

**Thursday, December 10**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
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<tbody>
<tr>
<td>9:00</td>
<td>Opening</td>
<td></td>
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<tr>
<td>9:05</td>
<td>MEMS1: Emerging Technologies</td>
<td></td>
</tr>
</tbody>
</table>
| 9:05 - 10:15 | MEMS1 - 1: Invited Quantum Dots in Lighting and Display: From R&D to Product Launch | S. Coe-Sullivan, V. Bulovic*  
QD Vision, USA  
*MIT, USA |
Samsung Elect., Korea |
| 9:45   | MEMS1 - 3: Large-Scale Non-Contact Electric Field Sensor Array, Fabricated by TFT | M. Ikeda, K. Nakamura*  
Videocon Displays Res., Japan  
*Micronics Japan, Japan |
| 10:00  | MEMS1 - 4: High Response Micromirror MEMS Displays Using PZT Gratings | J. Moon, M. Nakamoto, K. Shiratori  
Shizuoka Univ., Japan |

----- Break -----
MEMS2: Displays and Imaging

Chair: J. Jang, Kyung Hee Univ., Korea
Co-Chair: K. Maenaka, Univ. of Hyogo, Japan

MEMS2 - 1: Invited Flexible Array Sensors Based on Zinc Oxide Nanowires for Touch Displays
10:40
Univ. of Cambridge, UK
*Nokia Res. Ctr., UK

MEMS2 - 2: Invited Power MEMS for New Services and Environment
11:00
H. Kuwano
Tohoku Univ., Japan

MEMS2 - 3 Uncooled Infrared Radiation Focal Plane Array with Low Noise Pixel Driving Circuit
11:20
Toshiba, Japan

----- Lunch -----
The Etching Characteristics for Texturing Crystalline Silicon with Soft Mask

C. Wei, J.-M. Chen*, Y.-Z. Shih, Y.-H. Chien, J.-T. Lian*
Tatung Univ., Taiwan
Chungwa Picture Tubes, Taiwan

On the Texturization of Monocrystalline Silicon for Reflection Reduction

C. Wei, J.-M. Chen*, Y.-Z. Shih, Y.-H. Chien, J.-T. Lian*
Tatung Univ., Taiwan
Chungwa Picture Tubes, Taiwan

----- Break -----
MEMS4 - 5  Newly Developed Transfer Mold FEA Using Vacuum In-Situ Fabrication and Evaluation Method  
16:20  
K. Eto, M. Nakamoto, J. Moon, K. Shiratori  
Shizuoka Univ., Japan  

----- Break -----  

16:50 - 18:00  
MEMS5: Optical MEMS and Device Technologies  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:50</td>
<td>MEMS5 - 1: Invited</td>
<td>Mechanical Sensors and Actuators in MEMS Technology</td>
<td>K. Maenaka</td>
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<tr>
<td></td>
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<td>Univ. of Hyogo, Japan</td>
</tr>
<tr>
<td>17:10</td>
<td>MEMS5 - 2: Invited</td>
<td>MEMS-Based Polarization Light Modulator Linear Array Microdisplay</td>
<td>D. Bloom, M. Bellis</td>
</tr>
<tr>
<td></td>
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<td>Alces Tech., USA</td>
</tr>
<tr>
<td>17:30</td>
<td>MEMS5 - 3</td>
<td>Extending Rotation Range Confirmed by Macro Model of Gap-Closing Type Electrostatic Micromirror Controlling Non-Linearity of Torsion Bar Spring</td>
<td>G. I. Shim, R. Mimoto, S. Kumagai, M. Sasaki</td>
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<td>Toyota Technological Inst., Japan</td>
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<td>Univ. of Tokyo, Japan, JAXA, Japan, Toyohashi Univ. of Tech., Japan</td>
</tr>
</tbody>
</table>

Author Interviews  
18:00 – 19:00  

LatinDisplay 2009  
November 16–19, 2009  
Sao Paulo, SP, Brazil
Opening Remarks
13:15

H. Okumura, Toshiba, Japan

13:20 - 14:40  

DES1: Beyond the Standards

Chair: H. Okumura, Toshiba, Japan
Co-Chair: T. Yamamoto, NHK, Japan

DES1 - 1: \textit{Invited} Reconstruction-Based Super-Resolution Using Self-Congruency of Images
13:20

N. Matsumoto, T. Ida
Toshiba, Japan

DES1 - 2: \textit{Invited} Structure Design for Backside Illuminated Ultrahigh-Speed CCDs
13:40

T. Arai, T. Hayashida, K. Kitamura, J. Yonai,
H. Maruyama, T. Etoh*, H. Kuijk**
NHK, Japan
*Kinki Univ., Japan
**DALSA, the Netherlands

DES1 - 3: \textit{Invited} 4K/2K Layered Streaming of Super High Definition Video
14:00

T. Nakachi, T. Fujii
NTT, Japan

DES1 - 4: \textit{Invited} Improvement of Motion Image Quality by Using High Frame Rate from Shooting to Displaying
14:20

Y. Kuroki
Sony, Japan

----- Break -----
### DES2: Backlight Control

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
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</thead>
<tbody>
<tr>
<td>15:00</td>
<td>A Novel and Efficient Algorithm for Uniform of LED Backlight</td>
<td>C.-M. Ko, C.-F . Hsu</td>
<td>AU Optronics, Taiwan</td>
</tr>
<tr>
<td>15:15</td>
<td>Backlight Luminance Compensation Algorithm Reducing Clipping for Local Dimming in LCDs</td>
<td>J.-J. Hong, S.-E. Kim, W.-J. Song</td>
<td>Pohang Univ. of S&amp;T, Korea</td>
</tr>
<tr>
<td>15:30</td>
<td>Sorted Sector Covering Algorithm with Condensed Image Data and Soft Clipping Extension for Low-Cost Local Dimming Processor and High Power Saving</td>
<td>M. Albrecht, C. Xu</td>
<td>Saarland Univ., Germany</td>
</tr>
<tr>
<td></td>
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<td>*Samsung LCD, Korea</td>
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</tbody>
</table>

#### Break

### DES3: Advanced Display Systems

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:40</td>
<td>Invited Temporal and Spatial Electronic Image Formation for LCD’s</td>
<td>H.-P. Shieh</td>
<td>Nat. Chiao Tung Univ., Taiwan</td>
</tr>
</tbody>
</table>
DES3 - 2: Invited Backlight Adjustment, Image Compensation, and Color Model Mapping for High Dynamic Range(HDR) Spatial Modulated Display System
17:00
Y.-P. Huang, H.-P. Shieh, K.-G. Wang, L.-Y. Liao, F.-C. Lin, Y.-K. Cheng
Nat. Chiao-Tung Univ., Taiwan

DES3 - 3: Development of a 15M-Pixel Super High Resolution Medical LCD
17:20
M. Hasegawa, Y. Tanaka, K. Ichikawa*
TOKO Elec., Japan
*Kanazawa Univ., Japan

DES3 - 4: An Advanced Voltage Differential Signaling Interface for Chip-On-Glass Applications of TFT-LCD
17:35
Silicon Works, Korea
*LG Display, Korea

Author Interviews
18:00 – 19:00

Thursday, December 10

9:00 - 12:00 3F Foyer

Poster DESp: Display Electronic Systems

DESp - 1: PWM Limit Control Method and Block Contrast Ratio for Local-Dimming Backlights
Sharp, Japan

DESp - 2: A Fast Transient LED Driver with Dithering Dimming
D. Cho, S. W. Choi, J. H. Kim, G. W. Moon, W. S. Oh*, B. C. Yang*, T. S. Jang*
KAIST, Korea
*Samsung LCD, Korea

DESp - 3: LED Control Signal Extraction by Using Multiple Representative Values
W. Zhang, M. Chen, W. Niu, D. Huang
Hong Kong Appl. S&T Res. Inst., Hong Kong
DESp - 4 Investigation and Reduction of Viewing Angle Dependent Image Degradation Found in Adaptive Dimming Technique  
S. Ogaki, K. Sakakibara, T. Shiga  
Univ. of Electro-Commun., Japan

DESp - 5 Spatial and Temporal Filtering for Local Dimming Backlight Modulation  
InnoLux Display, Taiwan

DESp - 6 A Novel Side Light LED Backlight Control for Large Area Displays  
C.-W. Su, C.-I Chiang, T.-Y. Li, C.-C. Chang, C.-L. Tsou  
Chunghwa Picture Tubes, Taiwan

DESp - 7 A Novel Concept of the Feedback Compensation for RGB LED Backlight  
C.-W. Su, C.-I Chiang, C.-L. Tsou  
Chunghwa Picture Tubes, Taiwan

DESp - 8 2D Local Dimming on GPU  
H. Fatemi, H. G. Hulze  
NXP Semiconductors, the Netherlands

DESp - 9 Feedback Based Power Management for LCD Backlight Modulation for Guaranteed Average Levels of Power Consumption  
L. Kerofsky  
Sharp Labs. of America, USA

DESp - 10 The Method for Compensation Color-Shift on Color Sequential LCD  
W.-C. Tai, C.-C. Tsai, K.-T. Hu, H.-M. Chen, C.-L. Liu, C.-N. Mo  
Chunghwa Picture Tubes, Taiwan

DESp - 11 Improvement of Dynamic Image Quality by a Novel Overdrive Algorithm  
AU Optronics, Taiwan
Chair: K. Sekiya, Tohoku Univ., Japan
Co-Chair: T. Matsumoto, Sony, Japan

**VHF4/DES4 - 1:**
13:20
*Invited* Measuring Light and Color: An Introductory Talk to Photometry

*N. Ohta*
*Rochester Inst. of Tech., USA*

**VHF4/DES4 - 2:**
13:50
*Invited* Extending Applications of Multi-Primary Color LCDs

*Sharp, Japan*

**VHF4/DES4 - 3**
14:20
Image-Dependent Skin-Color Correction Technology Based on Skin-Based Color Space

*Y. C. Hsu, H. S. Chen*
*Nat. Taiwan Univ., Taiwan*

**VHF4/DES4 - 4**
14:40
Memory Color Detection and Enhancement for Improved Television Picture Quality

*H. Pan, X. Xu, J. Speigle, S. Daly*
*Sharp Labs. of America, USA*

Author Interviews
18:00 – 19:00

Supporting Organizations:
- Technical Committee on Electronic Information Displays, Electronics Society, IEICE
- Technical Committee on Image Engineering, Information and Systems Society, IEICE
- Information Sensing Research Committee, ITE

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**Final Program**

The final program of IDW ’09 will be available on the website (http://www.idw.ne.jp/) from the middle of November.
Topical Session on Flexible Displays

Thursday, December 10

9:00 - 9:10

Opening

Opening Remarks
9:00

H. Fujikake, NHK, Japan

9:10 - 10:35

FLX1: Flexible LC Technology

Chair: H. Okada, Univ. of Toyama, Japan
Co-Chair: T. Takahashi, Kogakuin Univ., Japan

FLX1 - 1: Invited The Importance of Surface Alignment of Bistable Nematic LCD
9:10

M. Kimura, J. B. Lias, K. Goda, Y. Azumai, T. Akahane
Nagaoka Univ. of Tech., Japan

FLX1 - 2
9:35

High Performance Full Color Cholesteric LCD with Dual Stack Structure

ITRI, Taiwan

FLX1 - 3
9:55

Flexible Display for LC on Bare Plastic Substrate with New Photosensitive Azodye Solution

L. Yao, A. Murauski, T. Du, Q. Yu, V. Chigrinov, H. S. Kwok
Hong Kong Univ. of S&T, China

FLX1 - 4
10:15

Tilt-Angle and Spacer Distribution Density Dependent LC Filling by Continuous Air-Extracting Technique

C.-M. Hsu, C.-J. Chan, W.-T. Wu, K.-S. Tsen
Southern Taiwan Univ., Taiwan
MIRDC, Taiwan

----- Break -----
FLX2: Flexible Electronic Paper

10:40 - 11:50  
Chair: S. Maeda, Oji Paper, Japan  
Co-Chair: Y. Masuda, Bridgestone, Japan  

FLX2 - 1:  
10:40  
Invited Innovative Applications of Flexible LCD Technology  
C.-C. Liao*,**, Y.-R. Lin*, C.-W. Kuo*, C.-Y. Chang*  
*ITRI, Taiwan  
**Device 2.0, Taiwan  

FLX2 - 2:  
11:05  
Invited A 200 ppi All-Printed Organic TFT Backplane for Flexible Electrophoretic Displays  
Ricoh, Japan  

FLX2 - 3  
11:30  
Development of Electrode Materials for Flexible Electronic Paper: Application of Conductive Organic Polymers by Higher Resolution Patterning  
M. Nishii, R. Sakurai, K. Sugie, Y. Masuda, R. Hattori*  
*Kyushu Univ., Japan  

----- Lunch -----  

FLX3: Materials & Components for Flexible Displays

13:20 - 14:55  
Chair: S. K. Ramadas, Tera-Barrier Films, Singapore  
Co-Chair: T. Nonaka, AZ Materials, Japan  

FLX3 - 1:  
13:20  
Invited Nanoparticulate High Barrier Films for Flexible Displays and Lighting Applications  
S. K. Ramadas, Z. M. Shwe, M. Auch  
Tera-Barrier Films, Singapore  

FLX3 - 2:  
13:45  
Invited Status of Thin Film Encapsulation of OLED: From Pilot to Manufacturing  
X. Chu, M. Rosenblum, S. Lin, C. Suen  
Vitex Sys., USA  

FLX3 - 3  
14:10  
Curved Display Technology Based on Glass Substrates  
W. C. Yang, W. Y. Chien, M. S. Chen, W. M. Huang  
AU Optronics, Taiwan
Invited Plastic Substrate and Backplane for Flexible AMOLED by Sheet to Sheet Process
ITRI, Taiwan

----- Break -----
Efficient and Chromatic-Controllable White Organic Light-Emitting Diodes on Plastic Substrates Using Color Conversion Method

B. Li, S. Sun, L. Lu, Y. Liao, C. Li, J. Zhang, H. Xu*, B. Wei

Shanghai Univ., China
*SVA Electron, China

Multilayer Transparent Electrodes for Flexible and Inverted Organic Light-Emitting Diodes

C. Yun, H. Cho, S. Park, S. Yoo

KAIST, Korea

Late-News Papers

Due September 25, 2009
Submit a two-page camera-ready manuscript via IDW website:
http://www.idw.ne.jp/latenews.html

IDW Best Paper Award

This award will go to the most outstanding paper selected from those presented at IDW ’09. The 2009 award winners will be announced on the IDW website: http://www.idw.ne.jp/award.html
Topical Session on Input Technologies

Friday, December 11

9:00 - 9:05
Opening

Opening Remarks
9:00

H. Okumura, Toshiba, Japan

9:05 - 10:25
INP1: Imaging Devices & Systems

Chair: S. Kawahito, Shizuoka Univ., Japan
Co-Chair: Y. Ukai, UDDI, Japan

INP1 - 1: Invited Recent Progress of CMOS Imaging Devices
9:05
S. Kawahito
Shizuoka Univ., Japan

INP1 - 2: Invited CMOS Based Retinal Prosthesis Technology
9:25
T. Tokuda, J. Ohta
Nara Inst. of S&T, Japan

INP1 - 3: Invited Stacked Image Sensor Using Organic
9:45
Photoconductive Films with ZnO-TFT Readout
Circuits
S. Aihara, H. Seo, M. Kubota, N. Egami, T. Hiramatsu*,
M. Furuta*, T. Hirao*
NHK, Japan
*Kochi Univ. of Tech., Japan

INP1 - 4: CMOS Image Sensor with a Thin Overlaid
10:05
Panchromatic Organic Photoconductive Layer for
Sensors with Reduced Pixel Size
M. Ihama, T. Mitsui, K. Nomura, Y. Maehara, H. Inomata,
T. Gotou, Y. Takeuchi
FUJIFILM, Japan

----- Break -----
INP2 - 1: Invited In-Cell Multi-Touch Panel: Trend and Applications
10:40
M.-J. Jou, C.-H. Li, Y.-J. Hsieh
AU Optronics, Taiwan

INP2 - 2: Invited Low Temperature Poly-Si TFT LCDs with Integrated Contact-Type Touch Sensors
11:00
S. Hayashi, Y. Yamauchi, H. Mizuhashi, T. Koito, M. Tamaki, M. Kondo, R. Tsuzaki, M. Minegishi
Sony Mobile Display, Japan

INP2 - 3: Invited AM Displays with Imbedded Photo-Sensors
11:20
J. Jang, S. H. Kim, M. H. Kang, J. H. Hur
Kyung Hee Univ., Korea

INP2 - 4: Invited A System LCD with Integrated Infra-Red Sensing Optical Touch Panel
11:40
C. Brown, H. Kato*, K. Tanaka*, Y. Sugita*
Sharp Labs. of Europe, UK
*Sharp, Japan

INP2 - 5: Touch Panel Embedded LCD Using Conductive Overlay
12:00
H. Haga, J. Yanase, Y. Kamon, Y. Kitagishi, K. Takatori, H. Asada, S. Kaneko
NEC LCD Techs., Japan

----- Lunch -----
INP3 - 4: Invited  Fast Updating of Bistable Displays for Pen Tracking and Page Flipping

B. Rhodes
Ricoh Innovations, USA

Author Interviews
16:20 – 17:20

IDW ’10
The 17th International Display Workshops
December 1-3, 2010
Fukuoka International Congress Center
Fukuoka, Japan
http://www.idw.ne.jp/

SID 2010
International Symposium, Seminar and Exhibition
May 23–28, 2010
Seattle, Washington, USA

IDW Tutorial in Japanese
Tuesday, December 8, 2009
Room “TENRAN” (4F)
World Convention Center Summit

Detailed information will be announced in October at http://www.sidchapters.org/japan/
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Y. Nishimura AKT
H. Ohnishi Ehime Univ.
T. Ohnishi Sumitomo Chem.
S. Okabayashi Meijo Univ.
T. Saito Tokyo Cathode Lab.
A. Sasaki Kyoto Univ.
T. Shinoda Shinoda Plasma
S. Shiwa Tokyo Denki Univ.
K. Sueoka Hokkaido Univ.
T. Sugiuira IDM
M. Sumitomo Nichia
K. Suzuki SED
K. Takeuchi DIC
Y. Takiguchi Ricoh
Y. Toko Stanley Elec.
Y. Tsuchiya NHK
M. Tsumura Hitachi
T. Uchida Tohoku Univ.
M. Uchidoi Panasonic
H. Uchiike
K. Uchikawa Tokyo Ohka Kogyo
S. Uemura Noritake
T. Ushiki Seiko Epson
S. Yamamoto Seiko Instrs.
Y. Yanagi Mitsubishi Heavy Ind.
Y. Yoda Otsuka Elec.
H. Yokoyama  Kent State Univ.
M. Yokozawa  Tokyo Univ. of Info. Sci.
M. Yuki  Asahi Glass

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LCT  H. Fujikake  NHK
AMD  K. Takatori  NEC LCD Techs.
FMC  R. Yamaguchi  Akita Univ.
PDP  H. Kajiyama  Hiroshima Univ.
PH  Y. Nakanishi  Shizuoka Univ.
FED  M. Takai  Osaka Univ.
OLED  T. Inoue  TDK
3D  I. Yuyama  Utsunomiya Univ.
VHF  Y. Shimodaira  Shizuoka Univ.
LAD  K. Takeda  Seiko Epson
EP  A. Suzuki  Ricoh
MEMS  M. Nakamoto  Shizuoka Univ.
DES  H. Okumura  Toshiba
FLX  H. Fujikake  NHK
INP  H. Okumura  Toshiba

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S. Maeda  Oji Paper
H. Okumura  Toshiba

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LAD  T. Hayashi  3M
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DES  K. Sekiya  Tohoku Univ.

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M. Hiramatsu Toshiba Mobile Display
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H. Kumomi Canon
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Program Chair: M. Shinozuka Omron
General Secretary: Y. Saitoh FUJIFILM
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S. Asari ULVAC
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F. Shimo Tokyo Electron
T. Takeda Nagase ChemteX
T. Tomono Toppan
Y. Ukai UDDI
T. Unate Sekisui Chem.
Y. Yang Sony
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Workshop Chair: H. Kajiyama Hiroshima Univ.
Program Chair: Y. Murakami NHK
General Secretary: T. Shiga Univ. of Electro-Commun.
Program Committee: S. Mikoshiba APDC
R. Murai Panasonic
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T. Shinoda Shinoda Plasma
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Workshop on EL Displays, LEDs and Phosphors
Workshop Chair: Y. Nakanishi Shizuoka Univ.
Program Chair: N. Miura Meiji Univ.
General Secretary: N. Matsuda Toshiba
Program Committee: S. Itoh Futaba
D. Y. Jeon KAIST
M. Katayama Denso
H. Kobayashi Tottori Univ.
T. Kusunoki SONY
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M. Niboshi Sharp
K. Ohmi Tottori Univ.
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D. Poelman Ghent Univ.
M. Shiiki Hitachi
M. Sumitomo Nichia Chem. Ind.
T. Takayuki Kasei Optonix
K. Wani TAZMO
R. J. Xie NIMS
H. Yamamoto Tokyo Univ. of Tech.

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Workshop Chair: M. Takai Osaka Univ.
Program Chair: H. Mimura Shizuoka Univ.
General Secretary: M. Namba NHK
Program Committee: T. Asano Kyushu Univ.
Y. Gotoh Kyoto Univ.
Y. Iguchi Sony
J. Ishikawa Chubu Univ.
T. Kusunoki Hitachi
M. Nakamoto Shizuoka Univ.
S. Okuda Sonac
T. Saito Tokyo Cathode Lab.
S. Uemura Noritake

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Program Chair: Y. Kijima Sony
General Secretary: S. Naka Univ. of Toyama
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S. Aratani Hitachi
Y. Fujita Sharp
R. Hattori Kyushu Univ.
J. Kido Yamagata Univ.
H. Kuma Idemitsu Kosan
H. Kubota Toshiba Mobile Display
A. Mikami Kanazawa Inst. of Tech.
T. Miyadera Pioneer
H. Miyazaki Nippon Steel Chem.
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Program Committee: T. Fujii Tokyo Inst. of Tech.
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K. Mashitani Sanyo Elec.
T. Mishina NICT
S. Ohtsuka Kagoshima Univ.
J.-Y. Son Daegu Univ.
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C.-H. Tsai ITRI
H. Yamamoto Univ. of Tokushima
T. Yoshida Toppan Printing

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J. Someya Mitsubishi Elec.
T. Tamura Tokyo Polytech. Univ
T. Wake Kanagawa Univ.
T. Yamamoto Hitachi
R. Yoshitake IBM Japan

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General Secretary: T. Suzuki JVC Kenwood
Program Committee: Y. Asakura Nittoh Kogaku
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Y. Hayashi Sony
H. Kanayama Sanyo Elec.
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K. Ohara Texas Inst. Japan
S. Ouchi Hitachi
Y. Sakai Ushio
Z. Tajima Mobara Atecs
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S. Maeda Oji Paper
Y. Masuda Bridgestone
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Y. Toko Stanley Elec.
T. Tsuchiya E-ink
G. F. Zhou Philips Res.

Workshop on MEMS for Future Displays and Related Electron Devices
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Program Chair: Y. Nakai Toshiba
General Secretary: T. Komoda Panasonic Elec. Works
Program Committee: T. Akinwande MIT
G. Barbastathis MIT
M. Esashi Tohoku Univ.
H. Fujita Univ. of Tokyo
J. Jang Kyung Hee Univ.
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J. M. Kim Samsung
K. Matsumoto Olympus
W. I. Milne Cambridge Univ.
T. Ooasa Tokyo Electron
S. Sugiyama Ritsumeikan Univ.
H. L. Tuller MIT
S. Uchikoga Toshiba
J.-B. Yoon KAIST
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S. Ito Shizuoka Univ.
T. Kim Apple
M. A. Klompenhouwer Philips Res.
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A. Nagase Mitsubishi Elec.
S. Ono Panasonic
H. Sasaki Toshiba
N. Suzuki Nokia Japan
K. Takeuchi Univ. of Electro-Commun.
T. Yamamoto NHK

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General Secretary: S. Maeda Oji Paper
Session Co-Chair: Y. Masuda Bridgestone
K. Nomoto Sony
S. Tokito NHK
T. Tomono Toppan Printing
Topical Session on Input Technologies
Session Chair: H. Okumura Toshiba
Program Committee: A. Suzuki Ricoh
N. Suzuki Nokia Japan
K. Takatori NEC LCD Techs.
Y. Ukai UDDI

EVENING GET-TOGETHER WITH WINE
Tuesday, December 8, 2009
18:00–20:00
Room “FOUNTAIN” (2F)
World Convention Center Summit
(Sponsored by Merck Ltd., Japan)
See page 9 for details

IDW Tutorial in Japanese
Tuesday, December 8, 2009
Room “TENRAN” (4F)
World Convention Center Summit

Detailed information will be announced in October at
http://www.sidchapters.org/japan/
MEMO

EXHIBITION

12:00–18:00  Wednesday, Dec. 9, 2009
10:00–18:00  Thursday, Dec. 10, 2009
10:00–14:00  Friday, Dec. 11, 2009

4F Foyer
World Convention Center Summit
Free admission with your registration name tag.
IDW ’10
The 17th International Display Workshops
December 1-3, 2010
Fukuoka International Congress Center
Fukuoka, Japan
http://www.idw.ne.jp/
<table>
<thead>
<tr>
<th>Location</th>
<th>Wednesday, Dec. 9 PM 18:00-19:00 AM 19:00-20:00 PM</th>
<th>Thursday, Dec. 10 PM 18:00-19:00 AM 19:00-20:00 PM</th>
<th>Friday, Dec. 11 PM 18:00-19:00 AM 19:00-20:00 PM</th>
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</thead>
<tbody>
<tr>
<td><strong>LCT</strong></td>
<td>TENZUI Opening, Keynotes &amp; Invited Addresses</td>
<td>TENZUI High Performance LCDs (1)</td>
<td>TENZUI Advanced Blue Phase LC Technology Emerging LC Materials New Functional LC Devices High Performance LCDs (2)</td>
</tr>
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<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
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<tr>
<td><strong>AMD</strong></td>
<td>TENZUI System on Panel 3D Device Technologies</td>
<td>TENGYOKU *AM-OLED (2) Sensing Devices Organic TFT</td>
<td>TENYO *AM-OLED (1) Oxide TFT (1) Oxide TFT (2)</td>
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<tr>
<td><strong>FMC</strong></td>
<td>TENZUI Manufacturing Technologies I Manufacturing Technologies II Environmental / Handy Technologies</td>
<td>TENGYOKU Materials I Materials II</td>
<td>TENZUI Backlight I Backlight II Optical Films I Optical Films II</td>
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<tr>
<td><strong>PDP</strong></td>
<td>TENZUI</td>
<td>TENZUI Novel PDPs MgO High γ Materials</td>
<td>TENZUI *AM-OLED (2) Field Emitters (1)</td>
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<tr>
<td><strong>PH</strong></td>
<td>TENZUI</td>
<td>TENZUI Phosphors for LEDs 2 *Phosphors for EL &amp; PDP</td>
<td>TENZUI *Phosphors for FEDs</td>
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<tr>
<td><strong>FED</strong></td>
<td>KAIHO</td>
<td>KAIHO Phosphors in General Phosphors for LEDs 1</td>
<td>KAIHO *Phosphors for FEDs</td>
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<tr>
<td><strong>OLED</strong></td>
<td>TENZUI OLED Material &amp; Device OLED Technologies</td>
<td>TENZUI OLED Lighting</td>
<td>TENZUI *AM-OLED (1) 3D Display Image 3D Display &amp; Acquisition 3D Display Performance (1) 3D Display Performance (2)</td>
</tr>
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</tr>
<tr>
<td><strong>3D</strong></td>
<td>ZUIYO</td>
<td>ZUIYO *Color (1) Color (2) Video System &amp; Image Quality</td>
<td>ZUIYO</td>
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<tr>
<td><strong>VHF</strong></td>
<td>KAIHO Moving Image Quality Dynamic Range &amp; Gray Scale Expression Display Human Factors</td>
<td>ZUIYO *Color (1) Color (2) Video System &amp; Image Quality</td>
<td>KAIHO</td>
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<tr>
<td><strong>LAD</strong></td>
<td>TENZUI</td>
<td>TENZUI Digital Cinema &amp; Signage Pico Projectors Laser Projector &amp; Its Components Speckle Reduction Technologies</td>
<td>TENZUI Projection Components</td>
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<tr>
<td><strong>EP</strong></td>
<td>TENGYOKU Electrophoretic Displays Particles Moving Displays LC Type Electronic Paper &amp; Others</td>
<td>TENZUI Electroreflective &amp; Electrophoretic Displays</td>
<td>TENGYOKU Driving Methods for Electronic Paper</td>
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<td>3F Foyer Posters A.I.</td>
</tr>
<tr>
<td><strong>MEMS</strong></td>
<td>ZUIYO Emerging Technologies Displays &amp; Imaging Fundamental Components Process Technologies 1 Fundamental Components Process Technologies 2 Optical MEMS &amp; Device Technologies</td>
<td>TENZUI Imaging Devices &amp; Systems Touch Panel (1) Touch Panel (2)</td>
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<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
</tr>
<tr>
<td><strong>DES</strong></td>
<td>KAIHO Beyond the Standards Backlight Control Advanced Display Systems</td>
<td>KAIHO *Color (1)</td>
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<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
</tr>
<tr>
<td><strong>FLX</strong></td>
<td>TENZUI Flexible LC Technology Flexible Electronic Paper Materials &amp; Components for Real Display Flexible Active-Matrix Devices Flexible OLED</td>
<td>TENZUI Imaging Devices &amp; Systems Touch Panel (1) Touch Panel (2)</td>
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<tr>
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<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
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<tr>
<td><strong>INP</strong></td>
<td>TENZUI Imaging Devices &amp; Systems Touch Panel (1) Touch Panel (2)</td>
<td>TENZUI Imaging Devices &amp; Systems Touch Panel (1) Touch Panel (2)</td>
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<tr>
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<td>3F Foyer Posters A.I.</td>
<td>3F Foyer Posters A.I.</td>
</tr>
</tbody>
</table>

LCT: Workshop on LC Science & Technologies  
AMD: Workshop on Active Matrix Displays  
FMC: Workshop on FPD Manufacturing, Materials & Components  
PDP: Workshop on Plasma Displays  
PH: Workshop on EL Displays & Phosphors  
FED: Workshop on Field Emission Display & CRT  
OLED: Workshop on Organic LED Displays  
3D: Workshop on 3D Hyper-Realistic Displays & Systems  
VHF: Workshop on Applied Vision & Human Factors  
LAD: Workshop on Projection & Large-Area Displays & Their Components  
EP: Workshop on Electronic Paper  
MEMS: Workshop on MEMS for Future Displays & Related Electron Devices  
DES: Workshop on Display Electronic Systems  
FLX: Topical Session on Flexible Displays  
INP: Topical Session on Input Technologies  
A.I.: Author Interviews  
*: Joint Session
**IDW ’09 Timetable**

**Date**
- **Dec. 8**
- **Dec. 9**
- **Dec. 10**
- **Dec. 11**

**Registration**
- **Dec. 8**: 17:00-20:00
- **Dec. 9**: 8:00-18:00
- **Dec. 10**: 8:00-13:00
- **Dec. 11**: 8:00-13:00

**Accompanying Events**
- **Evening Get-Together at FOUNTAIN Room (2F)**: 18:00-20:00
- **Exhibition**: 10:00-18:00
- **Banquet at TENZUI Room (4F)**: 19:30-21:30

**Keynote Address**
- **9:30-11:00**

**Breaks**
- **11:10-12:10**
- **9:00-10:10**
- **10:40-11:50**
- **13:15-14:40**
- **15:00-16:20**
- **18:00-19:00**

**Lunch**
- **12:00-18:00**
- **10:00-14:00**
- **16:40-17:40**
- **16:40-17:40**
- **16:40-17:45**
- **16:40-17:20**
- **16:40-18:00**
- **16:40-17:30**
- **16:40-18:00**
- **16:50-17:30**
- **16:50-17:00**
- **16:50-18:00**
- **16:50-17:20**

**Author Interviews**
- **18:00-20:00**
- **16:20-17:20**

**Date**
- **Dec. 8**: Evening Get-Together at FOUNTAIN Room (2F)
- **Dec. 9**: Opening, Keynote Address
- **Dec. 10**: FLX1, AMD4/OLED4, EP4, LAD1, PH1, MEMS1
- **Dec. 11**: LCT6, INP3, EP5, FMC8, AMD7, PH3, 3D1, AMDp, LADp

**Location**
- **2F Lobby**
- **4F SUMMIT HALL**
- **3F MID ROOM**
- **3F Foyer**
- **4F Foyer**
- **TENZUI**
- **TENRA**
- **TENGYOKU**
- **TENJU**
- **TENYO**
- **KAIHO**
- **ZUIYO**
## Registration

### (1) Conference Fee

The conference fee includes admission to the conference and proceedings. In addition, printed Final Program including abstract of each paper is provided at the conference site. No refunds will be made after November 6, 2009.

<table>
<thead>
<tr>
<th></th>
<th>By November 6</th>
<th>After November 6</th>
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<tbody>
<tr>
<td>CD-ROM only</td>
<td>¥30,000</td>
<td>¥40,000</td>
</tr>
<tr>
<td>CD-ROM+USB</td>
<td>¥35,000</td>
<td>¥45,000</td>
</tr>
<tr>
<td>CD-ROM+SD</td>
<td>¥35,000</td>
<td>¥45,000</td>
</tr>
<tr>
<td>CD-ROM+Books</td>
<td>¥35,000</td>
<td>¥45,000</td>
</tr>
</tbody>
</table>

*1 ASO: Academic Supporting Organizations (individual member), See p. 11 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 '09 Committee.

*4 Photocopy of your student ID is required.

*5 “CD-ROM+USB” and “CD-ROM+SD” cannot be selected by Mail/Fax registration and On-site registration.

### (2) Banquet Fee

<table>
<thead>
<tr>
<th></th>
<th>By November 6</th>
<th>After November 6</th>
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</thead>
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<td>¥7,000</td>
<td>¥10,000</td>
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</tbody>
</table>

One free ticket will be provided to each invited speaker.

### (3) Additional set of Proceedings (CD-ROM+Books)

Deadline is November 6.

- At the Conference Site: ¥8,000
- Airmail after the Conference: ¥15,000
- Domestic mail after the Conference: ¥10,000

### Registration

- e-Registration (Deadline: November 27, 2009)
  - Access http://www.idw.ne.jp/regist.html
- Mail or Fax (Deadline: November 27, 2009)
  - Registration Form is available via http://www.idw.ne.jp/regist.html
- On-site

Early-bird fee until Nov. 6

Deadline of Advance Registration: Nov. 27

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## Accommodations

JTB Corp. will handle arrangements for your hotel reservations. Room rates include service charge and 5% consumption tax. IDW participants who reserve a room at the Phoenix Seagaia Resort by November 6 can receive one breakfast coupon. Please note that this coupon can be used only once during your stay at the hotel you stay.

<table>
<thead>
<tr>
<th>Hotel Name</th>
<th>Room Type</th>
<th>Persons per room</th>
<th>Rates (per person/night)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheraton Grande Ocean Resort</td>
<td>Standard Double [36m²]</td>
<td>1</td>
<td>¥8,400</td>
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<tr>
<td></td>
<td>Superior Twin [50m²] / Deluxe Double [50m²]</td>
<td>2</td>
<td>¥10,500</td>
</tr>
<tr>
<td></td>
<td>Grande Twin [50m²] / Executive Double [71m²]</td>
<td>1</td>
<td>¥13,700</td>
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<td>2</td>
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<td>Sun Hotel Phoenix</td>
<td>Standard Twin [34m²]</td>
<td>2</td>
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<td>¥5,300</td>
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<td>Cottage Himuka</td>
<td>Group Type A [46m²] / Group Type B [89m²]</td>
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<td>Luxze Hitotsuba</td>
<td>Japanese / Western Room [72m²]</td>
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**Reservation**

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

**Cancellation Policy**

- 6 days or more days prior to the first night of stay: No charge
- 1 to 5 days before the first night of stay: 20% of total room charge
- The first night of stay (notice given): 50% of total room charge
- No notice given: 100% of total room charge

Deadline of Hotel Reservation: Nov. 20
IDW ’09
THE 16TH INTERNATIONAL DISPLAY WORKSHOPS

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• Active Matrix Displays
• FPD Manufacturing, Materials and Components
• Plasma Displays
• EL Displays and Phosphors
• Field Emission Display and CRT
• Organic LED Displays
• 3D/Hyper-Realistic Displays and Systems
• Applied Vision and Human Factors
• Projection and Large-Area Displays and Their Components
• Electronic Paper
• MEMS for Future Displays and Related Electron Devices
• Display Electronic Systems

Topical Sessions on
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