ITE

SID
SOCIETY FOR INFORMATION DISPLAY

IDW ’03

THE 10TH INTERNATIONAL DISPLAY WORKSHOPS

Workshops on

- LC Science and Technologies
- Active Matrix Displays
- FPD Manufacturing, Materials and Components
- CRTs
- Plasma Displays
- EL Displays, LEDs and Phosphors
- Field Emission Display
- Organic EL Displays
- 3D/Hyper-Realistic Displays and Systems
- Applied Vision and Human Factors
- Projection and Large-Area Displays, and Their Components

Topical Session on

- Electronic Paper

Advance Program

Fukuoka International Congress Center
Fukuoka, Japan
December 3 - 5, 2003

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PROGRAM HIGHLIGHTS

Scientific and technological advances in research and development on information displays will be found at the 10th International Display Workshops (IDW'03). A feature of the IDW '03 is an integration of the following eleven workshops and one topical session.

Workshops on
- LC Science and Technologies
- Active Matrix Displays
- FPD Manufacturing, Materials and Components
- CRTs
- Plasma Displays
- EL Displays, LEDs and Phosphors
- Field Emission Display
- Organic EL Displays
- 3D/Hyper-Realistic Displays and Systems
- Applied Vision and Human Factors
- Projection and Large-Area Displays, and Their Components

Topical Session on
- Electronic Paper

The three days conference will feature 403 papers, including one keynote address, two invited addresses, 64 invited papers, 158 oral and 178 poster presentation papers, and some additional late-news papers will also be arranged. Following keynote address on Wednesday morning, presentations will begin and continue in six parallel sessions through Friday. Two invited addresses will be provided on Thursday evening. Poster sessions and author interviews will enable participants to discuss presented issues in detail. Exhibitions from display and related industries will also be featured from Wednesday to Friday in parallel with workshops and a topical session. The IDW '03 should be of interest not only to researchers and engineers, but also to those who manage companies and institutions in the display community.

Workshop on LC Science and Technologies

Recent advances in LC materials and device technologies are presented. The session covers from fundamental studies to recent development of LCD technologies. LC material design and simulation, LC alignment, various LC modes, FLC/AFLCs and reflective LCDs are discussed.

Workshop on Active Matrix Displays

Recent progresses in TFT technologies and active matrix displays are widely discussed in this workshop. These sessions feature fourteen topical invited talks and cover devices and process technologies for a-Si, poly-Si and organic TFTs. Their applications to electronic papers, LC-TVs, mobile LCDs and organic EL Displays are also discussed.

Workshop on FPD Manufacturing, Materials and Components

This workshop begins with invited papers dealing with the new technologies on FPDs and the related technologies. In the technical sessions, papers deal with optical components, backlights, substrates, process technologies, measurement system, etc. for FPDs. New session on manufacturing technologies is started from this year.

Workshop on CRTs

This workshop covers the entire field of CRT technologies. This year, a topical session of strategy for future CRTs is organized targeting coming digital broadcasting era. This session will focus on the technology for realizing excellent picture quality.

Workshop on Plasma Displays

The features of IDW '03 are that submission of 70 papers and contributor's regions are increased more than those of the last year. We will have a lot of papers about cell design, and driving techniques to improve image quality and luminous efficiency. Research on physical properties of MgO is also progressed and wall charge behavior in the actual PDPs is successfully observed. The theoretical approach for phosphors will achieve new materials soon.

Workshop on EL Displays, LEDs and Phosphors

This workshop covers the latest R&D achievements in inorganic ELDs, phosphors for emissive displays and solid-state illumination as well as LEDs. Invited talks present “Color by Blue” full-color ELDs, high-contrast ELDs with a GaN emitting layer and a black-thick-insulating layer, low-voltage excitation phosphors synthesized by liquid-phase reactions, improved LEDs for displays of high luminance and phosphors for white LEDs. Contributed papers also include interesting topics such as nano-sized particle phosphors and flexible powder ELDs. In addition, a joint session will be held with the PDP Workshop, which discusses mainly on design of new phosphors and analysis of degradation mechanism.

Workshop on Field Emission Display

Resent progresses in FEDs fabricated by using carbon-nanotubes (CNT) as field emitters are presented. Operating characteristics of full color ballistic electron surface-emitting display and feasibility of graphite-nanofiber FED are also discussed.

Workshop on Organic EL Displays

This workshop includes recent developments in organic EL materials, devices and fabrication process. New organic fluorescent and phosphorescent materials are reported, and highly efficient EL devices using these materials are presented. Durability of the EL devices will be also presented.

Workshop on 3D/Hyper-Realistic Displays and Systems

This workshop focuses on recent developments in 3D and immersive/hyper-realistic display. It also covers 3D image processing such as multiview interpolation, CGH and coding technology. Invited talks in this workshop include the topics from a forefront of 3D technologies and the recent situation of business promotion related to 3D display systems.

Workshop on Applied Vision and Human Factors

This workshop includes 19 papers with respect to human factors, moving image quality, color reproduction and applied vision. Especially objective measurement method of image display in relating to ergonomics will be widely discussed.

Workshop on Projection and Large-Area Displays, and Their Components

The worldwide hottest technologies for projection displays will make this workshop exciting. Invited talks will cover topics on high performance projectors using a DMD and a novel light valve for HDTV and digital cinema applications. To enhance display performance, LCOS technology and important components for projector, including optics, lamps, peripheral circuit and new light source will be discussed.

Topical Session on Electronic Paper

This session will focus on current topics on Electronic Paper, Paper-like Display, and Rewritable Paper. Various technologies, including electrophoretic, photochromic, liquid crystal, and novel systems will be reported. Concepts, systems, devices, and materials on this field are expected to be discussed.

Outstanding Poster Paper Awards

A limited number of outstanding poster papers will be awarded on December 4, from 19:10 to 19:25 at the conference room 501 just after the Invited Addresses.

Exhibition

IDW ’03 exhibition will be held during 13:00 – 18:00 on December 3, 10:00 – 18:00 on December 4, and 10:00 – 13:30 on December 5. The latest display devices, appliances, manufacturing equipments, measuring instruments and materials for display technologies will be presented in the room 201 + 202. Please take this opportunity to enjoy informative discussion with exhibitors.

GENERAL INFORMATION

SPONSORSHIP

IDW ’03 is sponsored by the Institute of Image Information and Television Engineers (ITE) and Society for Information Display (SID).

WORKSHOP SITE

Fukuoka International Congress Center
2-1, Sekijo-machi, Hakata-ku
Fukuoka 812-0032, Japan
Phone: +81-92-262-4111 Fax: +81-92-262-4701

ON-SITE SECRETARIAT

Telephone and fax machines for IDW ’03 use will be temporarily set up in the secretariat room at Fukuoka International Congress Center (December 2-5).
Phone & Fax: +81-92-262-5660

BANQUET

A buffet-style banquet will be held on December 3 from 18:40 to 20:30 in the Heian room at Hotel Okura Fukuoka. As the number of tickets is limited, you are urged to make an advance reservation by completing the enclosed registration form and returning it with payment.

EVENING GET-TOGETHER WITH WINE

A get-together will be held on December 2 from 18:00 to 20:00 at the lobby in front of conference room 501. Wine (sponsored by Merck Ltd., Japan) will be served to participants with a relaxed atmosphere for informal discussion.

REGISTRATION

Registration Fees

The registration fee for IDW ’03 includes **admission to the conference, a set of proceedings book and CD-ROM.**

	Paid by Nov. 1	After Nov. 1
Member of SID/ITE/ASO*	¥ 40,000	¥ 45,000
Non-Member	¥ 45,000	¥ 50,000
Student**	¥ 13,000	¥ 13,000
Life Member of SID/ITE	¥ 13,000	¥ 13,000
Banquet	¥ 10,000	¥ 11,000

*ASO: Academic Supporting Organizations
(See page 85 as well as "Supporting Organizations and Sponsors" at the end of each workshop/topical session section.)
**Student ID is required.

For **additional** set of proceedings book and CD-ROM

at the conference site	¥13,000
Airmail after the conference	¥18,000
Sea/Domestic mail after the conference	¥15,000

Payment

Three ways are provided for the registration.

(1) Mail or Fax Registration

Complete the registration form (FORM A) at the centerfold and send it to the secretariat together with all necessary payments no later than November 21, 2003.

IDW ’03 Secretariat
c/o The Convention
Annecy Aoyama 2F
2-6-12, Minami-Aoyama
Minato-ku, Tokyo 107-0062, Japan
Phone: +81-3-3423-4180 Fax: +81-3-3423-4108

The registration fee (excluding hotel deposit) should be remitted by one of the following methods.

1. Bank transfer (only applicable to domestic participants) to:

   Account name: IDW
   Account no.: 4049628 (ordinary account)
   Bank name: Mizuho Bank
   Branch name: Sendai Branch

   Please attach a copy of your bank remittance form with the registration form to avoid possible troubles.

2. Bank check made payable to "IDW" together with the registration form

3. Credit card (only VISA or MasterCard accepted)

All above payments should be made in **JAPANESE YEN.**
Also, please note that personal and traveler's checks will not be accepted.

(2) e-Registration

Access the following URL.

http://idw.ee.uec.ac.jp/regist.html

The e-Registration is acceptable until November 21, 2003.

(3) On-site Registration

Conference registration desk will be open:

Tuesday, December 2	18:00-20:00
Wednesday - Thursday, December 3-4	8:30-17:00
Friday, December 5	8:30-15:00

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, and personal/traveler's checks are not accepted. Payment by cash is recommended.

Cancellation Policy

Refunds for registration, banquet, additional sets of proceedings book and CD-ROM, etc. will be made on written cancellation received by IDW '03 secretariat **by November 1.** For cancellations received after November 1 or no-shows, refunds will not be made. However, after IDW '03 closes, a set of proceedings book and CD-ROM will be sent to the registrants who have paid the registration fees.

INQUIRY

IDW '03 Secretariat
c/o The Convention
Annecy-Aoyama, 2F
2-6-12, Minami-Aoyama
Minato-ku, Tokyo 107-0062, Japan
Phone: +81-3-3423-4180 Fax: +81-3-3423-4108

Please pay attention to the website (http://idw.ee.uec.ac.jp/home.html) for latest information.

TRAVEL INFORMATION

OFFICIAL TRAVEL AGENT AND ACCOMMODATIONS

JTB Corp. has been appointed official travel agent for the Conference and will handle hotel accommodations. To make reservations, the attached form (Form B) should be completed and addressed to:

JTB Corp.
International Travel Division
Convention Center (CD101951-013)
2-3-11, Higashishinagawa, Shinagawa-ku, Tokyo 140-8604, Japan
Phone: +81-3-5796-5445, Fax: +81-3-5495-0685
e-mail: idw2003@itd.jtb.co.jp

Hotel reservation will also be made at the web site.
http:// idw.ee.uec.ac.jp/regist.html

There will also be an on-site travel information desk during the Conference period to handle arrangements for transportation and sightseeing tours.

JAPAN RAIL PASS

Tourists visiting Japan from abroad can save with a Japan Rail Pass. These 7-, 14-, 21-day passes are valid for unlimited travel on the Shinkansen trains (except NOZOMI) and other JR lines, plus its buses and ferries.
For details, please ask your travel agent and purchase an exchange order at an authorized agent before coming to Japan. This pass cannot be purchased in Japan.
After you arrive in Japan, you turn in the exchange order to receive your JAPAN RAIL PASS at an applicable JR station that has a JAPAN RAIL PASS exchange office.

Ex.

Narita Airport Terminal 1	Travel Service Center	11:30-19:00
	Ticket Office	6:15-11:30, 19:00-21:45
Narita Airport Terminal 2	Travel Service Center	11:30-19:00
	Ticket Office	6:30-11:30, 19:00-21:50
Kansai Airport	Ticket Office	5:30-23:00
Hakata Station	Travel Service Center	10:00-20:00
	Ticket Office	5:30-10:00, 20:00-23:00

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 agent 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 for its application at least two months before the Conference.

CLIMATE

The average temperature in Fukuoka during the period is around 9°C, with 13°C in the daytime and 5°C at night on the average.

FUKUOKA

Fukuoka City is located on the north of Kyushu Island, and has the geographical advantage of being close to the Korean Peninsula and the continent of China and has served as a gateway to import Asian continental cultures from olden times. The Fukuoka City of our time still plays an important role as one of the progressive cosmopolitan cities in Japan. The climate is rather mild with the annual mean temperature of about 17°C and is characteristic of the climate of the Japan Sea.

‘Hakata’ is another name of Fukuoka city and famous for ‘Hakata Ramen’. Some 250 shops offering genuine Hakata-style noodles in broth can be found in an area stretching from the Tenjin business district to the Nakasu area. Many of the shops do not open until the evening, and large numbers of business people can be seen enjoying a bowl of ramen after work. ‘Hakata Doll’ is also famous. A traditional local compliment to women was to say that someone looked like a Hakata Doll. The faces of the women are the most beautiful among the various Hakata Doll figures, which include warriors and children. The elegance of these dolls attracts many people.

PLACES OF INTEREST

Dazaifu Tenmangu Shrine (Fukuoka Prefecture)

(about 50 minutes by car, or 30 minutes by Nishitetsu train)

This, the head shrine of all the Tenmangu Shrines in Japan, worships the god of learning, Michizane Sugawara. The plum tree to the right of the main building as you face it is called Tobiume (the flying plum tree), because it is said that the tree flew here to be with Michizane.

Kushida Shrine (get off at Gion subway station, walk 2 minutes, or take the Nishitetsu Bus to Canal City Hakata-mae bus stop)

Kushida Shrine, the general tutelary shrine in Hakata, was built for the common people during the Heian Period. The huge ginkgo tree in the shrine grounds is Kushida Shrine's symbol. The shrine is the starting point of the Oiyama race held on the last day of the Hakata Gion Yamakasa Festival, one of the summer biggest events. Don't miss the Kazariyama (decorated floats) and the Hakata Historical Museum within the shrine. You can also visit Hakata Machiya Folk Museum, a replica of a town in Hakata during the Meiji and Taisho periods (1868-1926). Visitors can experience the lifestyle and festivals of the time and learn about traditional folk crafts.

Fukuoka City Museum (take a Nishitetsu Bus to Hakubutsukan Minami-guchi bus stop)

Using the latest audio and visual technology, the museum introduces the history and life of Fukuoka and Hakata, Japan’s window to the world. The Gold Seal (Kin-in), a designated national treasure, can be found in the regular exhibition room. The Gold Seal was presented by the Emperor of China in AD 57 and unearthed on Shikanoshima Island in 1784.

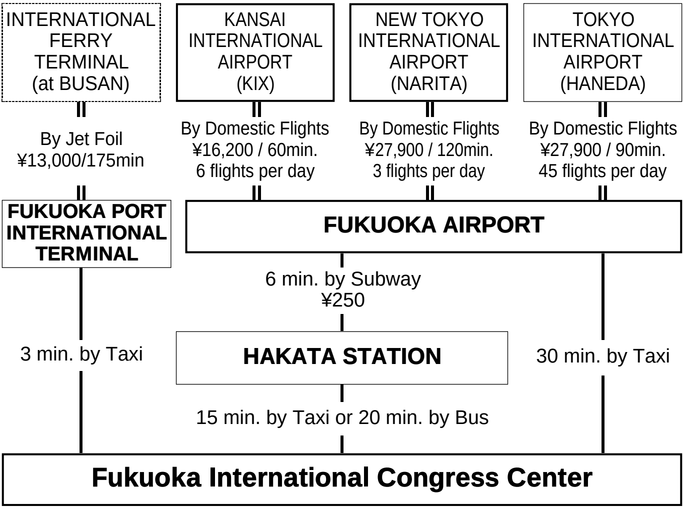
More information is available on
http://www.city.fukuoka.jp/index.html
http://www.welcome-fukuoka.or.jp/english/index.htm

BANQUET

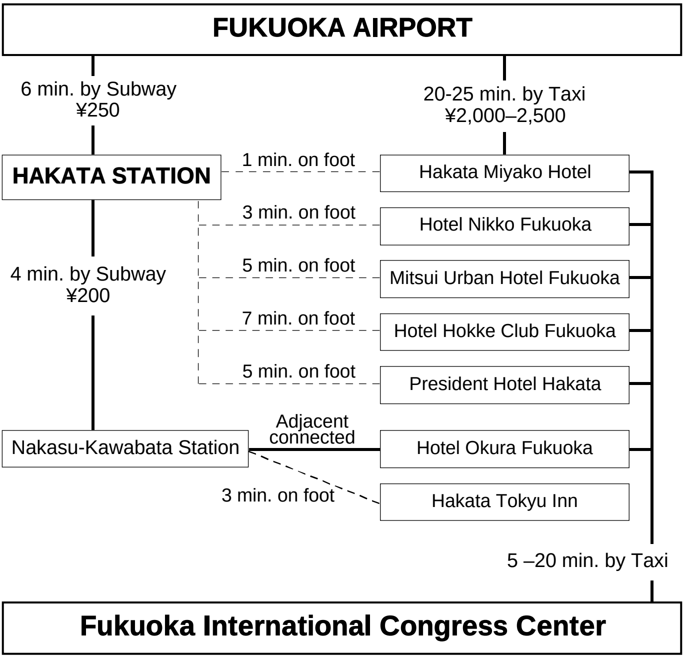
Wednesday, December 3
18:40 – 20:30
Hotel Okura Fukuoka

See page 6 for details

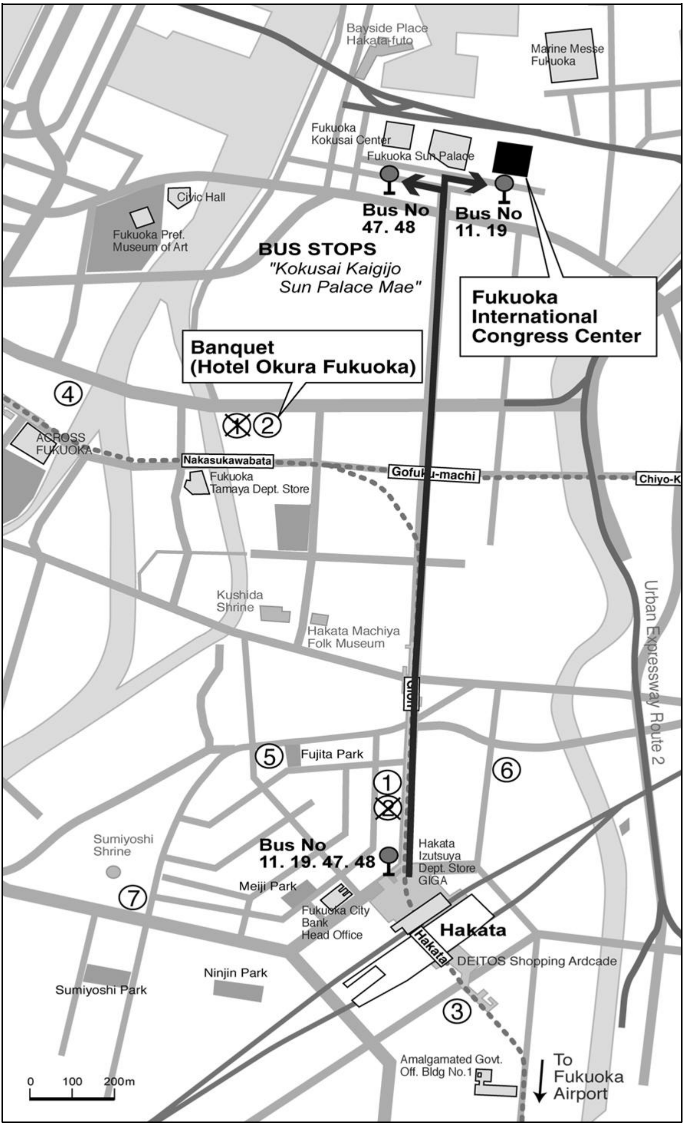
Access to Conference Site



Access to Hotels



Hotel Map



① **Hotel Nikko Fukuoka**
② **Hotel Okura Fukuoka (Banquet)**
③ **Hakata Miyako Hotel**
④ **Hakata Tokyu Inn**
⑤ **Mitsui Urban Hotel Fukuoka**
⑥ **President Hotel Hakata**
⑦ **Hotel Hokke Club Fukuoka**

Attention:
Map on Advance Program Booklet is incorrect (location of Hotel Nikko Fukuoka and Hotel Okura Fukuoka is reversed).
Please use this map (pdf data) for correct information.

IDW ’03

Wednesday, December 3

9:20 - 9:35 **Main Hall**

Opening

Master of Ceremony: T. Sugiura, Executive Chair

9:20
Opening Remarks

T. Uchida, General Chair
K. Suzuki, Program Chair

9:35 - 10:20 **Main Hall**

Keynote Address

Co-Chairs: K. Suzuki, Program Chair
T. Uchida, General Chair

9:35
Keynote Address - 1 Toward Industrial Applications of Carbon Nanotubes

S. Iijima
Meijo Univ., Japan

Thursday, December 4

18:00 - 19:10 **Room 501**

Invited Addresses

Co-Chairs: K. Betsui, Program Vice-Chair
Y. Iimura, Program Vice-Chair

18:00
Invited Address - 1 Strategy for Electronic Display Technology towards an Ubiquitous IT Environment

A. Kubota
NEDO, Japan

18:35
Invited Address - 2 Home Display Technology and Trends of Market

Y. Yamamoto
Sony, Japan

Workshop on LC Science and Technologies

Thursday, December 4

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster LCTp1: LC Mode

LCTp1 - 1 **A Geometric Influence of Electrode in In-Plane Switching Mode Cell**

J.-W. Kim, H.-J. Yoon, M.-W. Choi, C.-S. Lee, S.-I. Yoon, S.-H. Yoon*, T. Won*
Inha Univ., Korea
**Sanayi Sys., Korea*

LCTp1 - 2 **A Novel LC Cell Mode : Pseudo-TN IPS Mode**

C.-S. Lee, S.-H. Yoon, S.-I. Yoon, H.-J. Yoon, M.-W. Choi*, J.-W. Kim*, T. Won**
Sanayi Sys., Korea
**Inha Univ., Korea*

LCTp1 - 3 **Study on Phase Retardation of Fringe-Field Driven Homogeneously Aligned LC Cell**

S. H. Jung, S. H. Lee*, H. Y. Kim*,**, S. K. Lee**, Y. J. Lim***
**Chonbyk Nat. Univ., Korea*
***BOE Hyundai Display Tech., Korea*

LCTp1 - 4 **A Dual-Domain VA LC Cell Using Domain Walls**

K.-H. Park, J. S. Gwag, G.-D. Lee, T.-M. Kim, J. C. Kim, T.-H. Yoon
Pusan Nat. Univ., Korea

LCTp1 - 5 **Optical Compensation of an MVA-LCD with Circular Polarizers**

T. Houryu, Y. Iwamoto, Y. Iimura*
Tokyo Univ. of A&T, Japan
**Stanley Elec., Japan*

LCTp1 - 6 **Optical Compensation Method of In-Plane Switching Twisted Nematic Mode**

S. Oka, K. Kobayashi, Y. Iwamoto, Y. Toko*, M. Kimura, T. Akahane*
Nagaoka Univ. of Tech., Japan
**Stanley Elec., Japan*

LCTp1 - 7 **Influence of Inter-Data Line Crosstalk on Viewing Characteristics for LCDs**

S.-I. Yoon, S.-H. Yoon, M.-W. Choi, J.-H. Lee, C.-H. Lee*, J.-W. Kim, H.-J. Yoon, T. Won*
Inha Univ., Korea
**Sanayi Sys., Korea*

LCTp1 - 8 **Analysis of Diffraction Efficiency of Holographic Polymer Dispersed Liquid Crystal for Polarization Converting Device**

A. Ogiwara, K. Sogou, M. Takeda
Takamatsu Nat. College of Tech., Japan

LCTp1 - 9 **Fabrication of Transmission Holographic Polymer Dispersed Liquid Crystal Based on Noncrosslinked Polymers**

E. H. Kim, J. Y. Woo, B. K. Kim
Pusan Nat. Univ., Korea

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster LCTp2: Reflective LCDs

LCTp2 - 1 **Reduced Power Consumption in a Single-Polarizer Reflective TN-LCD with Two Retardation Films**

S. Yunoki, H. Hando, Y. Sakamoto, I. Fukuda
Kanazawa Inst. of Tech., Japan

LCTp2 - 2 **Optical Characteristics of Reflective HAN Mode TFT-LCDs**

D. H. Suh, Y. I. Park
BOE Hyundai Display Tech., Korea

LCTp2 - 3 **Optical Characteristics of Transflective TN Mode TFT-LCDs**

D. H. Suh, Y. I. Park, J. D. Noh, G. Son, J. Y. Lee
BOE Hyundai Display Tech., Korea

LCTp2 - 4 **Vertically-Aligned Transflective LCD with Patterned Electrodes**

H. W. Do, S. J. Park, S. H. Lee, G. D. Lee, T. H. Yoon, J. C. Kim
Pusan Nat. Univ., Korea

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster LCTp3: FLC/AFLC

LCTp3 - 1 **Pixel-Isolated Liquid Crystal Mode for Flexible Display Applications**

H.-G. Lee, J.-W. Jung, J.-H. Kim
Hallym Univ., Korea

LCTp3 - 2 **Resolution Improvement of Projection Images in Vertically Aligned Ferroelectric Liquid Crystal Devices with Surface Relief Gratings**

C.-J. Yu, Y. Choi, S.-D. Lee
Seoul Nat. Univ., Korea

LCTp3 - 3 **Bistable Microlens Array Using Ferroelectric Liquid Crystals**

H.-G. Lee, J.-W. Jung, J.-H. Kim
Hallym Univ., Korea

LCTp3 - 4 **Study on the Pretransitional Effect of Antiferroelectric LCD**

S. M. An, C. G. Jhun, S. O. Moon, G.-D. Lee, T.-H. Yoon, J. C. Kim
Pusan Nat. Univ., Korea

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster LCTp4: LC Alignment

LCTp4 - 1 **Novel Phase Transition from Vertical Alignment to Optically Compensated Splay**

S. J. Kim, H. Y. Kim*,**, S. H. Hong**, S. Y. Kim**,*
*Y. J. Lim**, S. H. Lee**
**Chonbyk Nat. Univ., Korea*
***BOE Hyundai Display Tech., Korea*

LCTp4 - 2 **Sensitizing Effect and Dichroic Ratio of Fluorescent Nematic Liquid Crystals**

R. Yamaguchi, D. Hiroshima, S. Sato
Akita Univ., Japan

LCTp4 - 3 **Anchoring Properties of Photoaligned Azo Dye Materials**

V. Chigrinov, A. Muravski, H. S. Kwok, H. Takada,*
H. Akiyama, H. Takatsu**
Hong Kong Univ. of Sci. & Tech., Hong Kong
**Dainippon Ink & Chems., Japan*

LCTp4 - 4 **Application of Infrared Ellipsometry to Characterize Molecular Orientation of Rubbed Polyimide Films**

I. Hirosawa
Japan Synchrotron Radiation Res. Inst., Japan

LCTp4 - 5 **New Alignment Method by Imprinting of LC Alignment on Polymer Layers**

J.-W. Jung, J.-H. Kim
Hallym Univ., Korea

LCTp4 - 6 **Dependence of Threshold Behavior upon Surface Distribution of Polymer Chains in a TN-LC Cell**

J. S. Gwag, T.-M. Kim, G.-D. Lee, J. C. Kim, T.-H. Yoon
Pusan Nat. Univ., Korea

LCTp4 - 7 **Azimuthal Anchoring Properties Related to Distribution of Polyimide Chains in a TN-LC Cell**

J. S. Gwag, J. W. Lee, G.-D. Lee, T.-H. Yoon, J. C. Kim
Pusan Nat. Univ., Korea

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster LCTp5: Fundamental Properties

LCTp5 - 1 **Stretching Deformation of Porous Polyolefin Films for Aligning Liquid Crystal**

H. Fujikake, M. Kuboki, T. Murashige*, H. Sato, H. Kikuchi,*
T. Kurita, F. Sato
NHK, Japan
**Tokyo Univ. of Sci., Japan*

LCTp5 - 2 **Numerical Study on the Operation of Super In-Plane Switching Display Mode**

M. W. Choi, S. H. Yoon**, S. I. Yoon*,**, C. S. Lee**,*
J. W. Kim, H. J. Yoon*, T. Won**
**Inha Univ., Korea*
***Sanayi Sys., Korea*

LCTp5 - 3 **New Optical Method of Liquid Crystal Shear Viscosity Measurements**

S. Pasechnik, V. Chigrinov, V. Tsvetkov, D. Shmeliova, A. Voronov*
Moscow State Ac. of Instr. Eng. & Computer Sci., Russia
**Hong Kong Univ. of Sci. & Tech., Hong Kong*

LCTp5 - 4 **Texture Transition of SmC* Liquid Crystal in a Magnetic Field**

B. Dalanbayar, Z. Mykytyuk
Lviv Polytechnic Nat. Univ., Ukraine

LCTp5 - 5 **Physico-Chemical Properties of Liquid Crystals Having a Carbonyl Group at the Terminal Position**

Y. Morita, T. Tasaka, K. Kabu, H. Okamoto, S. Takenaka
Yamaguchi Univ., Japan

LCTp5 - 6 **The Development of Chiral Materials and the Genetic QSPR Studies of HTP Property**

D.-J. Chen, J.-H. Ma, Y.-P. Lin, W.-C. Chen
ITRI, Taiwan

- - Lunch - -

14:00 - 15:05 **Room 409+410**

LCT1: Mobile Displays

Chair: S. Satoh, Akita Univ., Japan
Co-Chair: S. Komura, Hitachi, Japan

14:00
LCT1 - 1: ***Invited*** **Optical Modes for BiNem LCDs**

C. Joubert, A. Carton, D. Stoenescu, T. Scheffer
Nemoptic, France

14:25
LCT1 - 2 **The Development of High-Brightness Transflective TFT-LCD with New Convex Shape Transflector**

J. Kobayashi, K. Joten, Y. Konishi, H. Banba, Y. Iwai, Y. Takubo
Toshiba Matsushita Display Tech., Japan

14:45
LCT1 - 3 **The Effect of Bending on Flexible Liquid Crystal Displays**

P. A. Cirkel
Philips Res., The Netherlands

- - Break - -

15:35 - 17:00 **Room 409+410**

LCT2: Fast Response LCDs

Chair: C. Joubert, Nemoptic, France
Co-Chair: M. Ozaki, Osaka Univ., Japan

15:35
LCT2 - 1: ***Invited*** **Polymer-Stabilized Ferroelectric Liquid Crystal for Flexible Display Applications**

*H. Fujikake, H. Sato, T. Murashige**
NHK, Japan
**Tokyo Univ. of Sci., Japan*

16:00
LCT2 - 2 **Fabrication and Characteristics of Polymer-Stabilized V-Mode FLCDs and Their Application to Color Sequential Full-Color LCDs**

S. Kawamoto, M. Oh-kochi, H. Hasebe, H. Takatsu*, A. Mochizuki**, S. Kobayashi*
Tokyo Univ. of Sci., Yamaguchi, Japan
**Dainippon Ink. & Chems., Japan*
***Nano Loa LLI, USA*

16:20
LCT2 - 3 **Frequency Modulation TN-LCDs with Fast Response Speed Fabricated by Doping Nanoparticles**

T. Miyama, M. Oh-kochi, H. Shiraki, Y. Shiraishi, Y. Sakai, N. Toshima, S. Kobayashi
Tokyo Univ. of Sci., Yamaguchi, Japan

16:40
LCT2 - 4 **Passively Addressed Photo-Aligned Ferroelectric Liquid Crystal Display**

D. D. Huang, E. P. Pozhidaev, V. G. Chigrinov, H. L. Cheung, H. S. Kwok
Hong Kong Univ. of Sci. & Tech., Hong Kong

Author Interviews
17:00 - 18:00

Friday, December 5

9:00 - 10:20 **Room 409+410**

LCT3: LC Simulation

Chair: M. Heckmeier, Merck, Germany
Co-Chair: Y. Ouchi, Nagoya Univ., Japan

9:00
LCT3 - 1 **Numerical Study on the Dynamic Response of Directors for Vertically Aligned Liquid Crystal**

S. H. Yoon, S. I. Yoon, C. S. Lee, H. J. Yoon, M. W. Choi*, J. W. Kim*, T. Won**
Sanayi Sys., Korea
**Inha Univ., Korea*

9:20
LCT3 - 2 **Dynamic Characteristics of LCDs Driven by Complex Electric Field**

H. J. Yoon, C. S. Lee, J. W. Kim, M. W. Choi, S. I. Yoon*, S. H. Yoon*, T. Y. Won*
Inha Univ., Korea
**Sanayi Sys., Korea*

9:40
LCT3 - 3 **Spice Model for a Dynamic Liquid Crystal Pixel Capacitance**

H. De Smet,**, J. Van den Steen*,**, D. Cuypers*,***
**Ghent Univ., Belgium*
***IMEC, Belgium*

10:00
LCT3 - 4 **LCD Optimization and Modeling**

D. Yakovlev, V. Chigrinov, H.-S. Kwok**
Saratov State Univ., Russia
**Hong Kong Univ. of Sci. & Tech., Hong Kong*

- - Break - -

10:40 - 11:45 **Room 409+410**

LCT4: Novel Processing & Measurement

Chair: Y. Ouchi, Nagoya Univ., Japan
Co-Chair: M. Suzuki, Merck, Japan

10:40
LCT4 - 1: ***Invited*** **Multifunctional Glassy Liquid Crystals for Photonics**

S. H. Chen
Univ. of Rochester, USA

11:05
LCT4 - 2 **UV Exposure/ Thermal Development and Thermal Writing/ UV Fixing in the LC Cell Using Crosslinkable Polymer Film**

R. Yamaguchi, R. Wada, R. Mizutori, S. Sato
Akita Univ., Japan

11:25
LCT4 - 3 **Measuring the Three Viscosity Coefficients of Liquid Crystals Using a Homogeneous Cell**

Y. Funatsu, T. Miyashita, T. Ishinabe, T. Uchida
Tohoku Univ., Japan

- - Lunch - -

14:00 - 15:20 **Room 409+410**

LCT5: High Performance LCDs

Chair: H. Okada, Toyama Univ., Japan
Co-Chair: M. Kimura, JSR, Japan

14:00
LCT5 - 1 **Advanced Liquid Crystal Materials for TFT Mobile Application*s***

M. Heckmeier, G. Luessem, K. Tarumi
Merck, Germany

14:20
LCT5 - 2 **A Novel Optically Compensative Structure for Gray-Scale Inversionless OCB-LCDs**

T.-J. Chang, P.-L. Chen
AU Optronics, Taiwan

14:40
LCT5 - 3 **Color Analysis of Different LC Modes**

M.-C. Wu, C.-M. Chang, Y.-E. Wu, P.-L. Chen, K.-Y. Lin
AU Optronics, Taiwan

15:00
LCT5 - 4 **High Performance 10.4" Tablet LCD with the FFS Technology**

*H. Y. Kim, T. K. Park, K. H. Lee, S. K. Lee, Y. J. Lim, S. H. Lee**
BOE Hyundai Display Tech., Korea
**Chonbuk Nat. Univ., Korea*

- - Break - -

15:40 - 17:00 **Room 409+410**

LCT6: LC Alignment

Chair: S. H. Chen, Univ. of Rochester, USA
Co-Chair: M. Hasegawa, IBM Res., Japan

15:40
LCT6 - 1 **New Developments in Photo-Aligning with Azo-Dye Layers**

V. Chigrinov, V. Kozenkov, H. S. Kwok, H. Takada, H. Takatsu**
Hong Kong Univ. of Sci. & Tech., Hong Kong
**Dainippon Ink & Chems., Japan*

16:00
LCT6 - 2 **Pretilt Angle Control of Liquid Crystals by Photo-Aligned Films of Polyimide Containing Azobenzene in the Backbone Structure**

K. Sakamoto,**, K. Usami**, T. Sasaki*, T. Kanayama*, S. Ushioda*,***
**Tohoku Univ., Japan*
***RIKEN, Japan*

16:20
LCT6 - 3 **Novel Photoalignment Material Based on Chloromethylated Polyimide**

M.-H. Lee, Z.-X. Zhong, X.-D. Li, S. H. Han, S.-H. Lee
Chonbuk Nat. Univ., Korea

16:40
LCT6 - 4 **Behavior of Multidirectional Ion Beam Treatment of Nematic Liquid Crystals on a-C:H Films**

H. J. Ahn, S. J. Rho, K. C. Kim, H. K. Baik, C. J. Park, J. Y. Hwang, D. S. Seo
Yonsei Univ., Korea

Author Interviews
17:00 - 18:00

Supporting Organizations:
- LC physics and condensed matter forum, JLCS
- Chemistry and LC material forum, JLCS
- Liquid crystal display forum, JLCS
- LC photonics and optical device forum, JLCS
- Bionics and lyotropic liquid crystal forum, JLCS
- Technical Group on Information Display, ITE
- Technical Committee on Electronic Information Displays, Electronics Society, IEICE
- Technical Committee on Electron Devices, Electronics Society, IEICE

Workshop on Active Matrix Displays

Wednesday, December 3

10:40 - 11:50 **Main Hall**

AMD1: LC-TV Technologies

Chair: J. Jang, Kyung Hee Univ., Korea
Co-Chair: T. Sunata, Philips Mobile Display Syss. Kobe, Japan

10:40
AMD1 - 1: ***Invited*** **Technology Trends on Large Area LC-TVs**

H. Take
Sharp, Japan

11:05
AMD1 - 2: ***Invited*** **Super IPS Technology as a Wide Viewing Angle for TV Applications**

H. Choi
LG.Philips LCD, Korea

11:30
AMD1 - 3 **Large-Area TFT-LCD Using MHA Mode and FFD for TV Applications**

C.-R. Lee, C.-G. Lin, M.-C. Liu, H.-C. Wang
Chunghwa Picture Tubes, Taiwan

- - Break - -

14:00 - 15:10 **Main Hall**

AMD2/EP1: Active-Matrix Electronic Paper

Chair: M. Omodani, Tokai Univ., Japan
Co-Chair: S. Utsunomiya, Seiko Epson, Japan

14:00
AMD2/EP1 - 1: ***Invited*** **Driving Schemes for Active Matrix Electrophoretic Displays**

G. F. Zhou, M. T. Johnson, R. Cortie, R. Zehner,*
K. Amundson, A. Knaian*, B. Zion**
Philips Res. Labs., The Netherlands
**E Ink, USA*

14:25
AMD2/EP1 - 2: ***Invited*** **Microcup® Electrophoretic Displays, Grayscale and Color Rendition**

J. Chung, J. Hou, W. Wang, L.-Y. Chu, W. Yao, R. C. Liang
SiPix Imaging, USA

14:50
AMD2/EP1 - 3 **Printed Active Matrix Arrays for Electronic Paper Displays**

S. E. Burns, C. Kuhn, K. Jacobs, J. D. Mackenzie,
C. Ramsdale, J. Watts, M. Etchells, K. Chalmers, P. Devine,
N. Murton, S. Norval, J. King, J. Mills, H. Sirringhaus,
R. H. Friend
Plastic Logic, UK

- - Break - -

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster AMDp: Active-Matrix Displays

AMDp - 1 **Organic Thin-Film Transistor with Self-Organized Pentacene**

S. H. Kim, H. Y. Choi, J. Jang
Kyunghee Univ., Korea

AMDp - 2 **A New Negative Feedback Based Poly-Silicon AM-OLED Pixel Circuit with Highly Linear Transfer Characteristics**

B. Mazhari, Y. Chauhan
Indian Inst. of Tech., India

AMDp - 3 **Polymeric Gate Dielectrics for Flexible Organic Thin-Film Transistors**

J. H. Lee, J. H. Youk, G. H. Kim, S. H. Kim, S. C. Lim,
L. M. Do, K. S. Suh
ETRI, Korea

AMDp - 4 **Thin-Film Passivation for Longevity of Organic Light-Emitting Devices and Organic Thin-Film Transistor**

G. H. Kim, J. H. Lee, S. H. Kim, Y. S. Yang, J. H. Youk,
S. C. Lim, L.-M. Do, K. S. Suh
ETRI, Korea

AMDp - 5 **Effect of Mechanical and Electrical Stresses for MIM Adopting Si-Rich Silicon-Nitride on a Plastic Substrate**

H. C. Nam, J. H. Hur, J. Jang, J. H. Jeong, S. B. Kwon**
Kyung Hee Univ., Korea
**Soft Pixel, Korea*

AMDp - 6 **Fabrication of Polycrystalline Silicon Thin Films on Plastic Substrates for Flexible Active-Matrix Displays**

Y. H. Kim, S. K. Park, D. G. Moon, J. I. Han, I. H. Kim,*
*J. Jang**
KETI, Korea
**Kyung Hee Univ., Korea*

AMDp - 7 **High Performance P-Channel Single-Crystalline Si TFT Fabricated inside a Location-Controlled Grain by Micro-Czochralski Process**

V. Rana, R. Ishihara, Y. Hiroshima, D. Abe*, S. Inoue*,*
T. Shimoda, J. W. Metselaar, C. I. M. Beenakker*
Delft Univ. of Tech., The Netherlands
**Seiko Epson, Japan*

AMDp - 8 **High Performance Fully Self-Aligned Symmetric LDD LTPS-TFTs**

C.-H. Fang, D.-H. Deng, C.-W. Lin, S.-C. Chang, Y.-M. Tsai
Toppoly Optoelect., Taiwan

AMDp - 9 **Degradation of LTPS-TFT Devices Caused by Electrostatic Discharge**

M.-D. Ker, C.-K. Deng, T.-K. Tseng, S.-C. Yang**, A. Shih**,*
*Y.-M. Tasi***
Nat. Chiao-Tung Univ., Taiwan
**ITRI, Taiwan*
***Toppoly Optoelect., Taiwan*

AMDp - 10 **High Pressure Water Annealing for High Performance LTPS TFTs**

D.-H. Deng, S.-P. Wang, S.-C. Chang, Y.-M. Tsai
Toppoly Optoelect., Taiwan

AMDp - 11 **A New Submicron Photo Lithography Method for Next Generation TFTs on a Large Glass Substrate**

S. Tsujikawa, Y. Taniguchi, H. Yamaguchi
ALTEDEC, Japan

AMDp - 12 **Study of Intra-Gate LTPS TFT for Display Panel**

C. H. Tseng, D. H. Deng, H. C. Hsieh, J. H. Sun, S. C. Chang, Y. M. Tsai
Toppoly Optoelect., Taiwan

AMDp - 13 **Applying the Fuzzy Theory to Optimizing Process Parameters of Metal Dry Etching in the LTPS TFT Manufacturing**

T. C. Tsai, C. C. Chiang, J. M. Lin
ERSO/ITRI, Taiwan

AMDp - 14 **Plasma Treatment Effect on Device Performance and Reliability of ELA Poly-Si TFT**

Y. D. Son, K. S. Cho, J. U. Kwak, G. M. Lim, J. S. Lee, K. C. Park, J. Jang
Kyung Hee Univ., Korea

AMDp - 15 **Withdrawn**

AMDp - 16 **Crystal Growth of Polycrystalline Si Prepared by Combined Method of SPC Followed by ELA**

N. Kawamoto, N. Matsuo, F. Anwar, T. Nishimori, K. Nakamura, H. Hamada, K. Yamano**
Yamaguchi Univ., Japan
**Sanyo Elec., Japan*

AMDp - 17 **Gate Oxide Integrity of Microwave-Plasma-Grown Silicon Oxide**

A. Baba, C. Shin, T. Asano
Kyushu Inst. of Tech., Japan

AMDp - 18 **Low Threshold Voltage Poly-Si TFTs Formed Using Silicon Dioxide/Silicon Nitride Dual-Layer Gate Dielectric**

M. O'Sullivan, N. Young, I. French, R. Wilks
Philips Res. Labs., UK

AMDp - 19 **Fabrication of Poly-Si Thin-Film Transistor Using Gate Oxide Layer Formed by Wet Ozone-Enriched Oxidation**

M. Seki, P. N. Hai, S. Nishio, Y. Nakata, S. Horita
JAIST, Japan

AMDp - 20 **Uniformity and Stability of MICC Poly-Si TFTs in AM-OLED Backplane**

J. C. Kim, J. H. Choi, K. M. Kim, S. S. Kim, J. H. Cheon, D. S. Kim, Y. K. Lee, K. C. Park, J. Jang
Kyung Hee Univ., Korea

AMDp - 21 **Pulse Number Dependence of Spatial Period of Grain Boundary in Si Thin Film Crystallized by Linearly Polarized Pulse Laser with High Incident Angle**

H. Kaki, T. Ootani, S. Horita
JAIST, Japan

AMDp - 22 **Effect of a-Si Thickness on Ni-Mediated Crystallization**

J. H. Oh, K. H. Kim, Y. J. Chang, S. H. Kang, Y. M. Ku, S. J. Park, J. Jang
Kyung Hee Univ., Korea

AMDp - 23 **Effects of SiO_2 Nano Cap on Ni Mediated Crystallization of Amorphous Silicon**

Y. J. Chang, K. H. Kim, J. H. Oh, S. J. Park, S. H. Kang, J. Jang
Kyung Hee Univ., Korea

AMDp - 24 **Characteristic and Reliability of Low Temperature Poly-Si TFTs on Large Area Panel Manufacturing**

J.-J. Chang, C.-C. Chen, C.-S. Chuang, Y.-F. Wu, Y.-H. Yeh
ERSO/ITRI, Taiwan

AMDp - 25 **Study on Low Temperature Poly-Si Thin Film Transistors with Different Source/Drain Structures**

C.-Y. Huang, C.-H. Tsai, C.-C. Chen
ERSO/ITRI, Taiwan

AMDp - 26 **Dopant Activation and Damage Recovery of Ion-Shower-Doped Poly-Si during Activation Annealing**

J.-H. Park, D.-M. Kim, D.-S. Kim, S.-W. Ryu, J.-S. Ro, K.-H. Choi, K.-Y. Lee**
Hongik Univ., Korea
**Samsung SDI, Korea*

AMDp - 27 **Implementation of 2.2-in. QVGA LTPS TFT-LCDs with Integration of p-Type Driving Circuitry**

J.-D. Park, J.-W. Jang, Y.-S. Kim, S.-H. Jeong, Y.-M. Ha
LG.Philips LCD, Korea

AMDp - 28 **Power Consumption Estimation for Various TFT-LCD Modules**

M. R. Herrmann, S. Hagino
Philips Mobile Display Syss. Kobe, Japan

AMDp - 29 **DAC and Output Buffer for AM-LCDs Employing Poly-Si TFT**

K. C. Moon, I.-H. Song, B.-H. You, J.-H. Kim, M.-K. Han
Seoul Nat. Univ., Korea

AMDp - 30 **Study of Reducing Memory Capacity in Feedforward Driving by Using Image Compression**

N. Okuda, J. Someya, M. Yamakawa
Mitsubishi Elec., Japan

AMDp - 31 **A Novel Shift-Register Driving Scheme Using PMOS TFT**

S.-C. Lin, H.-Y. Lin, C.-M. Chiu, Y.-H. Tai
Toppoly Optoelect., Taiwan

AMDp - 32 **New High-Voltage Generator with Two-Point Voltage Detection Method Using Low-Temperature Poly-Silicon Technology for TFT-LCDs**

H. Hasegawa, Y. Suzuki, M. Yoshida, N. Sasaki
Tokai Univ., Japan

AMDp - 33 **A Novel Shift Register Circuit Design for LTPS Application**

T. H. Hsieh, H. G. Wu, J. P. Pang
InnoLux Display, Taiwan

AMDp - 34 **A New High-Voltage Generator Using Variable Boosting Step Method for TFT-LCD Drivers**

K. Umeda, Y. Suzuki, M. Yoshida, J. Yokota
Tokai Univ., Japan

AMDp - 35 **A New Protrusionless VA Mode**

T.-M. Hsieh, Y.-E. Wu, Y.-H. Huang, S.-P. Tai, P.-L. Chen
AU Optronics, Taiwan

AMDp - 36 **Gate Line and Data Line Effects on MVA Mode LCDs**

M.-C. Wu, Y.-E. Wu, P.-L. Chen, K.-Y. Lin
AU Optronics, Taiwan

AMDp - 37 **Pixel Size Effect on Multi-Domain Vertical Alignment Liquid Crystal Display**

S.-P. Tai, Y.-H. Huang, J.-C. Liang, Y.-E. Wu, P.-L. Chen
AU Optronics, Taiwan

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster AMD/OELp: Active-Matrix OLED

AMD/OELp - 1 **An Active Matrix OLED Display Employing an Improving Gray Scale Structure**

J.-Y. Hu, C.-S. Yang, W.-T. Sun, J.-S. Yu, C.-S. Li,
J.-C. Tseng, C.-C. Chen, T.-S. Chui, J.-J. Lih, C.-F. Sung,
C.-H. Li, S.-H. Li, T.-H. Hsiao, Y.-F. Wang
AU Optronics, Taiwan

AMD/OELp - 2 **AM-OLED Pixel Circuits Suitable for TFT Array Testing**

Y. Sakaguchi, D. Nakano
IBM Res., Japan

AMD/OELp - 3 **Design of a Novel 6-bit Current Data Driver System for AM-OLED**

W.C. Hsueh, C.Y. Meng, A. Shin, Y.M. Tsai*
Toppoly Optoelect., Taiwan
**Nat. Taiwan Univ., Taiwan*

AMD/OELp - 4 **A Self-Compensated Voltage Programming Pixel Structure for Active-Matrix Organic Light Emitting Diodes**

S. M. Choi, O. K. Kwon
Hanyang Univ., Korea

AMD/OELp - 5 **A High-Uniformity Voltage Programmed Active-Matrix OLED**

J.-R. Shih, C.-R. Chen, C.-F. Chung, Y.-H. Yeh, J.-R. Lin, C.-H. Liou, M.-D. Chen
ERSO/ITRI, Taiwan

AMD/OELp - 6 **Apparatus for Improving Yields of Active-Matrix OLED Panels**

C.-C. Kuo,**, W.-T. Liao*, H.-R. Han*, Y.-H. Yeh***, W.-C. Wang**
**Windell, Taiwan*
***Nat. Chung Hsing Univ., Taiwan*
****ERSO/ITRI, Taiwan*

AMD/OELp - 7 **Active-Matrix Organic Light Emitting Diode Drive Circuit**

C.-C. Kuo,**, H.-R. Han*, W.-T. Liao*, M.-D. Chen***, W.-C. Wang**
**Windell, Taiwan*
***Nat. Chung Hsing Univ., Taiwan*
****ERSO/ITRI, Taiwan*

AMD/OELp - 8 **A New Poly-Si TFT Based AM-OLED Driving Method with Both Amplitude and Pulse Width Modulation**

J. Y. Jeong, J. Kim
Univ. of Suwon, Korea

AMD/OELp - 9 **Development of IR Drop Simulator for AM-OLED**

H. Miyazawa, S. B. You, J. W. Lee, C. H. Lee, K. B. Cheong, J. H. Lee, N. Komiya
Samsung SDI, Korea

Author Interviews
17:00 - 18:00

Thursday, December 4

9:00 - 10:25 **Main Hall**

AMD3/OEL4: AM-OLED (1)

Chair:	K. Mameno, Sanyo Elec., Japan
Co-Chair:	R. Hattori, Univ. of Tokyo, Japan

9:00
AMD3/OEL4 - 1: ***Invited*** **Technological Challenge toward AM-OLED TV**

T. Urabe
Sony, Japan

9:25
AMD3/OEL4 - 2 **Pixel Circuit for a-Si AM-OLED**

S. Ono, Y. Kobayashi, K. Miwa, T. Tsujimura
IDTech, Japan

9:45
AMD3/OEL4 - 3 **A Uniform 10-in. Color Active-Matrix OLED with New Pixel Driving Circuit**

Y.-H. Yeh, J.-R. Shilh, C.-R. Chen, Y.-H. Kuo, Y.-L. Liu, C.-C. Chen, C.-F. Chung, C.-C. Chen, C.-Y. Hung, H.-Y. Tseng, T.-H. Chen, M.-D. Chen
ERSO/ITRI, Taiwan

10:05
AMD3/OEL4 - 4 **Optimization of a Time Ratio Gray Scale Method for OLED Display**

T. Nanmoto, H. Hara, K. Takahashi, T. Iwashita, H. Hirayama, H. Kawai, S. Inoue, T. Shimoda
Seiko Epson, Japan

- - Break - -

10:40 - 12:05 **Main Hall**

AMD4/OEL5: AM-OLED (2)

Chair: T. Urabe, Sony, Japan
Co-Chair: H. Hamada, Sanyo Elec., Japan

10:40
AMD4/OEL5 - 1: ***Invited*** **High-Resolution AM-OLED Display Using White Emitter and Color Filter Array**

K. Mameno, S. Matsumoto, R. Nishikawa, T. Sasatani, T. Yamaguchi, K. Suzuki, Y. Hamada, N. Saito, K. Yoneda
Sanyo Elec., Japan

11:05
AMD4/OEL5 - 2 **A New 6-bit Digital-Type Current Driven Structure of OLED Display**

J.-C. Tseng, C.-S. Yang, W.-T. Sun, J.-S. Yu, C.-S. Li, C.-C. Chen, J.-Y. Hu, T,-S. Chui, J.-J. Lih, C.-F. Sung, C.-H. Li, S.-H. Li, T.-H. Hsiao, Y.-F. Wang
AU Optronics, Taiwan

11:25
AMD4/OEL5 - 3 **Comparison of Vth Compensation Ability Among Voltage Programming Circuits for AM-OLED Panels**

*N. Komiya, C. Y. Oh, K. M. Eom, J. T. Jeong, H. K. Chung, O. K. Kwon**
Samsung SDI, Korea
**Hanyang Univ., Korea*

11:45
AMD4/OEL5 - 4 **5-TFT Pixel Circuit Design for Active-Matrix Organic Light Emitting Diode Compensating Non-Uniformity of Poly-Si TFTs and OLEDs**

J.-H. Lee, W.-J. Nam, B.-H. You, M.-K. Han
Seoul Nat. Univ., Korea

- - Lunch - -

14:00 - 15:25 **Main Hall**

AMD5: Organic TFT Technologies

Chair: G. F. Zhou, Philips Res. Labs., The Netherlands
Co-Chair: N. Matsuo, Himeji Inst. of Tech. Japan

14:00
AMD5 - 1: ***Invited*** **Organic Thin Film Transistors Incorporating Crystalline Polyfluorene Semiconductor Films**

C. J. Newsome, T. Kawase, T. Shimoda*, D. J. Brennan***
Cambridge Res. Lab. of Epson, UK
**Seiko Epson, Japan*
***Dow Chem., USA*

14:25
AMD5 - 2 **Polymer-Dispersed Micro-Encapsulated Liquid Crystal Displays Driven by Organic Thin-Film Transistor Arrays Fabricated by Printing Methods**

J.-C. Ho, T.-S. Hu, Y.-W. Wang, L.-Y. Huang, W.-K. Huang, C.-C. Hsieh, W.-L. Lin, H.-Y. Cheng, H.-L. Cheng, M.-C. Hsiao, C.-C. Liao, Y.-Y. Chang, C.-C. Lee
ERSO/ITRI, Taiwan

14:45
AMD5 - 3 **Organic TFT Driven Liquid Crystal Cell with Anodic Oxidized Gate Insulator and Double Protection Layers**

Y. Fujisaki, Y. Inoue, H. Sato, T. Kurita, S. Tokito, H. Fujikake
NHK, Japan

15:05
AMD5 - 4 **Effects of Alternating Magnetic Field on Pentacene Film for Organic Thin Film Transistors**

J. H. Park, Y. S. Lee, J. S. Choi, E. S. Kim, J. S. Ro
Hongik Univ., Korea

- - Break - -

15:40 - 16:50 **Main Hall**

AMD6: Flexible Display

Chair: H. Abe, ALTEDEC, Japan
Co-Chair: M. Ikeda, Toshiba, Japan

15:40
AMD6 - 1: ***Invited*** **High-Resolution TFT Display on Transparent Plastic Substrate**

J. Jang
Kyung Hee Univ., Korea

16:05
AMD6 - 2: ***Invited*** **Flexible and Deformable Silicon Thin-Film Transistor Backplanes**

S. Wagner, H. Gleskova, P.-H. I. Hsu, J. C. Sturm, Z. Suo
Princeton Univ., USA

16:30
AMD6 - 3 **Reliability of Low Temperature a-Si TFTs for Plastic TFT-LCDs**

H. Nishiki, T. Okabe, K. Nakamura, K. Yamada, M. Okamoto
Sharp, Japan

Author Interviews
17:00 - 18:00

Friday, December 5

9:00 - 10:25 **Main Hall**

AMD7: TFT Technologies (1)

Chair: P. Migliorato, Univ. of Cambridge, UK
Co-Chair: S. Horita, JAIST, Japan

9:00
AMD7 - 1: ***Invited*** **Advanced TFT Process Technologies for Active-Matrix Displays**

H. Abe, Y. Yamamoto
ALTEDEC, Japan

9:25
AMD7 - 2 **TFT Characteristics of Nucleation Controlled Poly-Si Thin Film by Using Conventional ELA Equipment**

J. Yanase, H. Okumura, H. Kanou, H. Hayama
NEC, Japan

9:45
AMD7 - 3 **Metal-Induced Crystallization of Amorphous Silicon Using a Cap Layer**

J. H. Choi, S. S. Kim, J. C. Kim, K. M. Kim, J. H. Cheon, J. Jang
Kyung Hee Univ., Korea

10:05
AMD7 - 4 **Growth of Large Si Grains under Room Temperature by Phase-Modulated Excimer-Laser Annealing Method**

H. Ogawa, M. Hiramatsu, Y. Kimura, M. Jyumonji, Y. Taniguchi, M. Matsumura
ALTEDEC, Japan

- - Break - -

10:40 - 12:05 **Main Hall**

AMD8: TFT Technologies (2)

Chair: S. Wagner, Princeton Univ., USA
Co-Chair: Y. Nakata, ALTEDEC, Japan

10:40
AMD8 - 1: ***Invited*** **Dynamic Behaviour of Polycrystalline and Single Grain Silicon TFTs**

P. Migliorato, F. Yan, S. Inoue, T. Shimoda*, R. Ishihara***
Univ. of Cambridge, UK
**Seiko Epson, Japan*
***Delft Univ. of Tech., The Netherlands*

11:05
AMD8 - 2 **Dependence of Transistor Characteristics on Trap Densities at the Front- and Back-Oxide Interfaces in Thin-Film Transistors**

M. Kimura, S. Inoue, T. Shimoda**
Ryukoku Univ., Japan
**Seiko Epson, Japan*

11:25
AMD8 - 3 **Low Threshold Voltage Poly-Si TFTs Formed Using Tantalum Oxide Gate Dielectric**

M. O'Sullivan, N. Young, C. Glasse, R. Wilks
Philips Res. Labs., UK

11:45
AMD8 - 4 **Reliability of Low Temperature Poly-Si TFT and Its Application to 3-in. UXGA LCD Panel**

C.-C. Chen, J.-J. Chang, C.-S. Chuang, Y.-F. Wu, Y.-H. Yeh
ERSO/ITRI, Taiwan

- - Lunch - -

13:45 - 15:15 **Main Hall**

AMD9: Mobile Display Technologies

Chair: H. Hayama, NEC, Japan
Co-Chair: T. Nishibe, Toshiba Matsushita Display Tech., Japan

13:45
AMD9 - 1: ***Invited*** **Mobile Phones and Displays: New Business and Growth**

*N. Suzuki, M. Salmela, J. Kimmel**
Nokia Japan, Japan
**Nokia Res. Ctr., Finland*

14:10
AMD9 - 2: ***Invited*** **Advanced Driver IC Techniques for Mobile AM-LCDs**

Y. Kudo, T. Eriguchi, A. Akai, T. Matsudo, Y. Yokota***
Hitachi, Japan
**Hitachi Displays, Japan*
***Renesas Tech., Japan*

14:35
AMD9 - 3 **New Low-Power Driving Algorithm for TFT-LCDs**

M. Yamashita, H. Watanabe, S. Hagino
Philips Mobile Display Syss. Kobe, Japan

14:55
AMD9 - 4 **Security Display: Smartcard-Like LCD for Visually Decripting Encripted Information**

A. G. H. Verhulst, M. T. Johnson, P. Tuyls, T. A. M. Kevenaar, G. J. Schrijen
Philips Res. Labs., The Netherlands

- - Break - -

15:35 - 17:00 **Main Hall**

AMD10: SOG Technologies

Chair:	T. Asano, Kyushu Inst. of Tech., Japan
Co-Chair:	Y. Kudo, Hitachi, Japan

15:35
AMD10 - 1: ***Invited*** **Quite a New Approach for System-on-Glass Technology Based on Low-Temperature Polycrystalline Silicon**

T. Nishibe, N. Ibaraki
Toshiba Matsushita Display Tech., Japan

16:00
AMD10 - 2 **A Flat-Panel Imager Utilizing a-Si TFT Array Technology**

Y. Izumi, O. Teranuma, M. Takahashi, T. Sato, K. Uehara, H. Okada, Y. Yamane
Sharp, Japan

16:20
AMD10 - 3 **Poly-Si TFT-LCD with High Efficiency Integrated Charge Pump Circuits**

J. R. Ayres, K. Yamashita**, F. Rohlfing*,**, H. Watsuda**, H. Nagai**, M. Inoue**, M. J. Edwards*, P. Collins*, H. Murai****
**Philips Res. Labs., UK*
***Philips Mobile Display Syss. Kobe, Japan*
****Mitsubishi Elec., Japan*

16:40
AMD10 - 4 **A High-Efficient Level Shifter Using Active Body-Bias Technique for LCD Driver in LTPS Technology**

M.-D. Ker, W.-J. Hsu, Y.-H. Li, A. Shih*, Y.-M. Tasi**
Nat. Chiao-Tung Univ., Taiwan
**Toppoly Optoelect., Taiwan*

Author Interviews
17:00 - 18:00

Supporting Organizations:

Chemistry and LC material forum, JLCS
LC physics and condensed matter forum, JLCS
Liquid crystal display forum, JLCS
Technical Committee on Electron Devices, Electronics Society, IEICE
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Technical Group on Information Display, ITE
Technical Committee on Silicon Device and Materials, IEICE

Workshop on FPD Manufacturing, Materials and Components

Wednesday, December 3

10:40 - 11:55 **Room 502+503**

FMC1: Advanced Technologies

Chair: J. C. Lapp, Corning, USA
Co-Chair: T. Miyashita, Tohoku Univ., Japan

10:40
FMC1 - 1: ***Invited*** **Novel Fine Pattern Transcription by Nano Imprint Lithography**

Y. Hirai
Osaka Pref. Univ., Japan

11:05
FMC1 - 2: ***Invited*** **A Compact and High Optical Transmission SAW Touch Screen**

F. Nakazawa, S. Sano, T. Katsuki, Y. Takahashi, Y. Sato
Fujitsu Labs., Japan

11:30
FMC1 - 3: ***Invited*** **Development of the Unified Image and Sound Module**

M. Tashiro, T. Nishimura*,***
**Authentic, Japan*
***NXT Asia Services, Japan*

- - Lunch - -

13:50 - 15:20 **Room 502+503**

FMC2: Manufacturing Technologies (1)

Chair: K. R. Sarma, Honeywell, USA
Co-Chair: Y. Ukai, Sony, Japan

13:50
FMC2 - 1: ***Invited*** **Atmospheric Pressure Plasma Cleaning for LCD Manufacturing Processes**

M. Yoshitani
Dainippon Screen Mfg., Japan

14:15
FMC2 - 2: ***Invited*** **0.5μm-Resolution Lithography for Large Substrates**

F. Clube, M. Jorda, S. Mourgue, A. Nobari, S. Inoue,*
C. Iriguchi, E. Grass**, H. Mayer***
Holtronic Tech., Switzerland
**Seiko Epson, Japan*
***Microfab, Liechtenstein*

14:40
FMC2 - 3 **Development of Spin Processor for LTPS LCDs**

H. Shibazaki
Dainippon Screen Mfg., Japan

15:00
FMC2 - 4 **Solid Laser Crystallization of a-Si Films Using a Newly Developed 200W Nd:YAG2ω Pulse Laser Annealing System for Poly-Si TFT-FPDs**

K. Tamagawa, H. Ikeda, T. Ohnishi, K. Kuwahara, M. Kikuchi, M. Hayama, K. Nakamura
ULVAC, Japan

- - Break - -

15:30 - 17:00 **Room 502+503**

FMC3: Manufacturing Technologies (2)

Chair: A. R. Nobari, Holtronic. Tech., Switzerland
Co-Chair: J. Jang, Kyung Hee Univ., Korea

15:30
FMC3 - 1: ***Invited*** **Future Prospects of Photolithographic Materials for LTPS TFT toward a Submicron Process**

T. Takeda, T. Hamada
Clariant Japan, Japan

15:55
FMC3 - 2: ***Invited*** **Advanced Optical Metrology for Next-Generation Color Filter Processes and TFT-LCD Manufacturing**

A. Sato, H. Lu, M. Mino*, R. Morrison*, J. Roth**
Canon Sales, Japan
**Zygo, USA*

16:20
FMC3 - 3 **Liquid Crystal Drop and Vacuum Assembling System for Large Size Substrates**

A. Hirai, Y. Nakayama, K. Imaizumi, M. Mitsumoto, T. Murayama
Hitachi Inds., Japan

16:40
FMC3 - 4 **New Concept for LCD Cell Process**

S. Kajiwara
Shibaura Mechatronics, Japan

Author Interviews
17:00-18:00

Thursday, December 4

9:00 - 10:30 **Room 502+503**

FMC4: Materials

Chair: H. S. Soh, LG. Philips LCD, Korea
Co-Chair: D. K. Choi, Dow Corning, USA

9:00
FMC4 - 1: ***Invited*** **The Main Sealant for Liquid Crystal Dropping Method**

K. Kojima
Kyoritsu Chem., Japan

9:25
FMC4 - 2 **Development of Transparent Conductive Films for Organic Light-Emitting Diodes**

S. Ukishima, J. Kiyota, M. Arai, H. Takei, S. Ishibashi
ULVAC, Japan

9:45
FMC4 - 3: ***Invited*** **Photosensitive Low-k Spin-On-Glass (SOG) for Flat Panel Displays**

T. Nagahara, H. Matsuo, A. Yamamoto, A. Igawa
Clariant Japan, Japan

10:10
FMC4 - 4 **Performance of TFT Passivated with Low-k Dielectrics**

D. K. Choi, J. H. Hur, H. J. Kim*, H. C. Nam*, S. Maghsoodi, R. R. Warner, G. A. Cerny, J. Jang**
Dow Corning, USA
**Kyung Hee Univ., Korea*

- - Break - -

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster FMCp: FPD Manufacturing, Materials & Components

FMCp - 1 **Pinholes in the External Electrode Fluoresent Lamps**

J.-Y. Lee, J.-H. Lee, D.-H. Lee, J.-W. Hong, D.-U. Yang, M.-R. Cho, Y.-G. Lee, B.-S. Kim, E.-H. Choi, J.-G. Kang, G. Cho
Kwangwoon Univ., Korea

FMCp - 2 **Improvement of Efficiency in the EEFL (External Electrode Fluorescent Lamp) for LCD Backlight**

T.-I. Lee, K. W. Park, H.-I. Park, H. K. Baik
Yonsei Univ., Korea

FMCp - 3 **Development of a New Low CTE (Coefficient of Thermal Expansion) Plastic Substrate for Active Matrix LCDs**

T. Ito, A. Sugizaki, T. Eguchi**
Sumitomo Bakelite, Japan
**Tech. Res. Assn. for Advanced Display Materials, Japan*

FMCp - 4 **The Method of Reducing Mechanical Bending Stress in Flexible Displays Incorporated with Encapsulation Layers**

J. B. Park, D. S. Seo, Y. H. Kim, S. K. Park*, D. G. Moon*, J. I. Han**
Yonsei Univ., Korea
**KETI, Korea*

FMCp - 5 **The Study of Excluding Fiber from Seal in New Process**

K. N. Yang, J.K. Lu, Y.J Liao
AU Optronics, Taiwan

FMCp - 6 **Low Temperature Poly Silicon Crystallized by Using Rapid Photothermal Annealing for Large-Area Applications**

S. H. Kang, S. J. Park, K. H. Kim, J. H. Oh, Y. J. Chang, Y. M. Ku, K. C. Park, J. Jang
Kyung Hee Univ., Korea

FMCp - 7 **Isotropic Photonic Band Gap in 2-D Photonic Microcavity with Penrose Quasicrystal Pattern**

J.-Y. Zhang, H.-L. Lam, W. H. Wong, Y. B. Pun*, K.-W. Cheah*
Hong Kong Baptist Univ., Hong Kong
**City Univ. of Hong Kong, Hong Kong*

FMCp - 8 **Micro-Reflection Properties of Transmissive TFT-LCDs**

P.-L. Chen, C.-M. Chang, C.-Y. Tsai
AU Optronics, Taiwan

FMCp - 9 **Advanced Transflective TFT-LCDs Using Dual Thickness Color Filter**

M.-C. Chang, C.-M. Chang, P.-L. Chen
AU Optronics, Taiwan

- - Lunch - -

14:00 - 15:25 **Room 502+503**

FMC5: Substrates & Spacers

Chair: M. Schaepkens, General Elect., USA
Co-Chair: K. Dantani, Dai Nippon Printing, Japan

14:00
FMC5 - 1: ***Invited*** **High Performance Plastic Substrate for Flat Panel Displays**

T. Nakao, S. Shibahara, W. Oka
Sumitomo Bakelite, Japan

14:25
FMC5 - 2 **A Novel Plastic Substrate for a High Resolution Display**

I. Shiroishi, T. Hanada, N. Saito, T. Shiro, T. Yatabe
Teijin, Japan

14:45
FMC5 - 3 **Polycarbonate Film Substrates for Flexible Display Applications**

M. Schaepkens, M. Yan, T.-W. Kim, A. Erlat, K. Flanagan, C. Heller, P. McConnelee, G. Gillette, A. Duggal
General Elec., USA

15:05
FMC5 - 4 **Advanced Photo Spacer with Elasticity & Softness (Photo Spacer for 6th & 7th Generation)**
Y. Pae, J.-H. Lee, M.-S. Lyu, J.-H. Han, H.-J. Cha, H.-J. Seo, H.-C. Shin*
Advanced Display Materials Service & Tech., Korea
**Korea Res. Inst. of Standard & Sci., Korea*

- - Break - -

15:35 - 17:00 **Room 502+503**

FMC6: Color Filters

Chair: E. F. Schieffer, E. I. DuPont de Nemours, USA
Co-Chair: T. Taguchi, Toppan Printing, Japan

15:35
FMC6 - 1: ***Invited*** **A New Color Filter Structure for LCD-TVs**

R. Harada, M. Sugawara, N. Moriya, S. Hayashi, M. Iida
Dai Nippon Printing, Japan

16:00
FMC6 - 2 **Novel Reflective Color Filters Using Patterned Cholesteric Liquid Crystals**

K. Ishizaki, Y. Iizuka, N. Itoh, N. Moriya
Dai Nippon Printing, Japan

16:20
FMC6 - 3 **Carbon-Pigmented Photoresist for Black Matrix of Color Filter Used in Liquid Crystal Displays**

S. Abe, K. Niwa, A. Kumano
JSR, Japan

16:40
FMC6 - 4 **Thermal Imaging System for LCD Color Filter Manufacturing**

E. F. Schieffer, R. A. Coveleskie
E. I. DuPont de Nemours, USA

Author Interviews
17:00-18:00

Friday, December 5

9:00 - 10:25 **Room 502+503**

FMC7: Backlight Systems (1)

Chair: R. S. West, Lumileds Lighting, USA
Co-Chair: Y. Iimura, Tokyo Univ. of A&T, Japan

9:00
FMC7 - 1: ***Invited*** **Perspectives on White LED Lighting**

T. Taguchi
Yamaguchi Univ., Japan

9:25
FMC7 - 2 **LED Backlighting for Large Area LCD TV's**

R. S. West, H. Konijn, S. Kuppens*, N. Pfeffer*, Y. Martynov*, T. Heemstra*, T. Yagi**, G. Harbers*
Lumileds Lighting, USA
**Lumileds Lighting, The Netherlands*
***Lumileds Lighting, Japan*

9:45
FMC7 - 3 **Double-Side Emissive Backlight Unit for Transmissive LCD Using a Single Functional Light-Guide Plate**

K. Käläntär, S. Matsumoto, T. Katoh, T. Mizuno
Nippon Leiz, Japan

10:05
FMC7 - 4 **Curved Prism Array for Controlling Directivity of LED Backlight**
M. Shinohara, J. Takagi, M. Oba, M. Takeuchi
Omron, Japan

- - Break - -

10:40 - 12:10 **Room 502+503**

FMC8: Backlight Systems (2)

Chair: M. Suzuki, IDTech., Japan
Co-Chair: M. Takagi, Harison Toshiba Lighting, Japan

10:40
FMC8 - 1: ***Invited*** **Design Consideration for a Backlight Unit for a Large Area LCD-TV**

M. Suzuki, K.-T. Huang, H.-S. Hsieh**
IDTech, Japan
**Chi Mei Optoelect., Taiwan*

11:05
FMC8 - 2 **Highly Efficient LCD Backlight Having No Optical Film**

H. Suzuki, M. Horiguchi, T. Okumura, A. Tagaya, Y. Koike
Keio Univ., Japan

11:25
FMC8 - 3 **Fabrication of Bezelless and High Brightness Multi-Lamp Backlight for TFT-LCD Multivision**

*H. Lee, J. Park, J. Hur, S. Lim**
General Lighting & Displays, Korea
**Dankook Univ., Korea*

11:45
FMC8 - 4: ***Invited*** **Glass Phosphor Embedding Semiconductor Nanocrystals for a Flat Panel Display**

N. Murase, C. Li
Nat. Inst. of Advanced Ind. Sci. & Tech., Japan

- - Lunch - -

14:00 - 15:05 **Room 502+503**

FMC9: Optical Films (1)

Chair: C. Doornkamp, Philips Res. Labs., The Netherlands
Co-Chair: T. Nagatsuka, Nitto Denko, Japan

14:00
FMC9 - 1: ***Invited*** **Next Generation Mobile LCDs with In-Cell Retarders**

C. Doornkamp, B. M. I. van der Zande, S. J. Roosendaal, L. W. G. Stofmeel, J. J. Glabbeek, J. T. M. Osenga, J. A. M. Steenbakkers
Philips Res., The Netherlands

14:25
FMC9 - 2 **Mura-Improved Thin Wide View Film for LCDs**

E. Aminaka, Y. Ito, M. Murayama, N. Fukagawa, M. Wada, H. Mori, K. Takeuchi, K. Mihayashi
Fuji Photo Film, Japan

14:45
FMC9 - 3 **Wide-Viewing-Angle Transflective TFT-LCD with Ultra-Thin Liquid Crystalline Polymer Compensators**

T. Ogasawara, E. Yoda, T. Uesaka, T. Toyooka
Nippon Oil, Japan

- - Break - -

15:40 - 16:40 **Room 502+503**

FMC10: Optical Films (2)

Chair: J. Bruinik, Philips Res. Labs., The Netherlands
Co-Chair: H. Mori, Fuji Photo Film, Japan

15:40
FMC10 - 1 **Advanced ARTON™ Thin Film for Retarders**

M. Sekiguchi, T. Ushino, H. Shibata, N. Miyaki, Y. Sakakura
JSR, Japan

16:00
FMC10 - 2 **Development of a Directional Diffuser**

L. Murillo-Mora, H. Honma, Y. Maekawa, M. Takano,
K. Hirose, A. Sato, F. Iwata
Toppan Printing, Japan

16:20
FMC10 - 3 **Advanced Anti-Static and Low-Reflection Coatings Using Functional Nano-Particles of Porous SiO_2 and Sb_2O_5**

M. Kumazawa, T. Hirai, M. Matsuda, M. Komatsu
Catalysts & Chems. Ind., Japan

Author Interviews
17:00-18:00

Supporting Organizations:
The Japanese Society of Printing Science and Technology
Japan Society of Colour Material
The Technical Association of Photopolymers, Japan
The Imaging Society of Japan
Society of Photographic Science and Technology of Japan
Japan Printed Circuit Association
The Society of Radtech, Japan
The Society of Polymer Science, Japan
The Japanese Research Association of Organic Electronics Materials
The Chemical Society of Japan
Chemistry and LC material forum, JLCS
Liquid crystal display forum, JLCS
LC Photonics and optical device forum, JLCS
Technical Group on Information Display, ITE
Technical Committee on Electronic Information Displays, Electronics Society, IEICE

Workshop on CRTs

Wednesday, December 3

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster CRTp: CRTs

CRTp - 1 **A Newly Developed Multi-Leaf Grille for Reducing Vibration**

K. Saita, M. Okada
Sony, Japan

CRTp - 2 **A New Clear Gun Design for 17-in. and 19-in. Multi-Vision Display Application**

H.-L. Chang, C.-H. Yeh
Chunghwa Picture Tubes, Taiwan

Thursday, December 4

9:00 - 9:50 **Room 411+412**

CRT1: Strategy for Future CRTs

Chair: P. A. M. van der Heide, LG.Philips Displays, The Netherlands
Co-Chair: T. Saito, Tokyo Cathode Lab., Japan

9:00
CRT1 - 1: ***Invited*** **Picture Quality of CRTs**

S. Shirai
Hitachi Displays, Japan

9:25
CRT1 - 2: ***Invited*** **Advanced Phosphor Screen for Next Generation CRTs**

K. Ohno
Sony, Japan

- - Break - -

10:40 - 11:45 **Room 411+412**

CRT2: Magnetics

Chair: B. B. Dasgupta, ADI, USA
Co-Chair: M. Maeda, Maeda Consulting, Japan

10:40
CRT2 - 1: ***Invited*** **Material Design of Magnetic Shielding Components in CRT Considering the Degaussing Process**

T. Inoue, H. Matsuoka, K. Fujita, T. Hiratani, Y. Tanaka
JFE Steel, Japan

11:05
CRT2 - 2 **Automated Convergence Correction During Yamming (ITC)**

B. B. Dasgupta, S. O. Shik
ADI, USA

11:25
CRT2 - 3 **A High Sensitivity Velocity Modulation Coil for Projection CRTs**

S. Sakurai, T. Hisada, S. Watanabe, T. Asano**
Hitachi, Japan
**Hitachi Displays, Japan*

- - Lunch - -

13:40 - 15:30 **Room 411+412**

CRT3: Screens & CRT Components

Chair: D. den Engelsen, LG.Philips Displays, The Netherlands
Co-Chair: T. Sugawara, Asahi Glass, Japan

13:40
CRT3 - 1: ***Invited*** **Color Gamut Expansion in CRTs**

*D. den Engelsen, S. Sluyterman, I. Heynderickx**
LG.Philips Displays, The Netherlands
**Philips Res. Labs., The Netherlands*

14:05
CRT3 - 2 **Study on Breakage of Glass Bulbs in Frit-Sealing Process**

H. Takamuku
Asahi Glass, Japan

14:25
CRT3 - 3 **Improvement of Electronic Conductivity of Wet Coating ITO Film for CRTs**

H. Inokuma, Y. Otani
Asahi Glass, Japan

14:45
CRT3 - 4: ***Invited*** **Lifetime Performance of Cathodes in CRTs**

P. A. M. van der Heide, G. Gaertner, D. Barratt***
LG.Philips Displays, The Netherlands
**Philips Res. Labs., Germany*
***LG.Philips Displays, UK*

15:10
CRT3 - 5 **A Study of Oxide Cathodes with Sub-Micrometer Powder**

C. N. Mo, M. Liu, T. O. Chuan, P. K. Lin, Y. W. Yang
Chunghwa Picture Tubes, Taiwan

- - Break - -

15:40 - 17:00 **Room 411+412**

CRT4: Electron Guns

Chair:	H. Y. Chen, Chunghwa Picture Tubes, Taiwan
Co-Chair:	Y. Wada, Matsushita Toshiba Picture Display, Japan

15:40
CRT4 - 1 **An Advanced Tri-Potential Focus Electron Gun in CRTs for High-Brightness and High-Definition TV**

H. Ishihara, N. Endo, Y. Tagawa, S. Masataka
Sony, Japan

16:00
CRT4 - 2 **Innovative Gun Concepts for Super-Slim Tubes**

H. Steinhauser, R. Gelten, J. Snel
LG.Philips Displays, The Netherlands

16:20
CRT4 - 3 **A Revolutionary Gun Design for a Maskless CRT with Reduced Depth**

W. L. IJzerman, M. P. C. M. Krijn
Philips Res. Labs., The Netherlands

16:40
CRT4 - 4 **A High-gm and Low-Emittance Cathode with Convex Surface**

T. Shiroishi, M. Fujikawa, N. Hinomoto, H. Yamaguchi, A. Nagase, S. Nakata, S. Okuda
Mitsubishi Elec., Japan

Author Interviews
17:00 - 18:00

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

Outstanding Poster Paper Awards

Thursday, December 4

19:10 – 19:25

Conference Room 501,

Fukuoka International Congress Center

See page 5 for details

Workshop on Plasma Displays

Wednesday, December 3

10:40 - 12:00 **Room 501**

PDP1: Cell Design

Chair: G. Oversluizen, Philips Res. Labs., The Netherlands
Co-Chair: T. Shinoda, Fujitsu Labs., Japan

10:40
PDP1 - 1: ***Invited*** **Development of Performance- and Cost-Oriented HD-PDP TV with High-Picture Quality Using High-Efficiency Hexagonal Array Structure**

M.-K. Yoo, J.-N. Kim, S.-H. Yim, Y.-H. Cho, C.-K. Yoon, J.-K. Kim, C.-K. Lee, J.-K. Kim, B.-H. Lee
Samsung SDI, Korea

11:00
PDP1 - 2 **Luminous Efficiency Improvement by Stripe Barrier Rib Structure with Discharge Deactivation Films**

S. Nagano, K. Jo, K. Hirose, H. Kawarazaki
Mitsubishi Elec., Japan

11:20
PDP1 - 3 **PDP with Step-Formed Box Barrier Ribs**

S. Okumura, T. Ando, K. Shindo, K. Mizuno, M. Nishinaka, H. Yasui, U. Miyagawa, Y. Takata
Panasonic AVC Networks, Japan

11:40
PDP1 - 4 **New Generation of 50-in. Color Plasma Display with Low-Cost Design and Low Power Consumption**

L. J. Y. Lu, P. C. H. Tien, C. K. Pan, E. Sung, H. B. Hsu
AU Optronics, Taiwan

- - Lunch - -

14:00 - 15:00 **Room 501**

PDP2: Discharge Mechanism & Driving Method

Chair: K. H. Whang, Seoul Nat. Univ., Korea
Co-Chair: S. Mikoshiba, Univ. of Electro-Commun., Japan

14:00
PDP2 - 1 **Observation of Wall Charge Distribution during Reset and Address Discharges**

D. C. Jeong, K.-W. Whang
Seoul Nat. Univ., Korea

14:20
PDP2 - 2 **Diagnostics of PDP Micro-Discharge Plasma using Two-Dimensional Emission and Thomson Scattering Measurements**

S. Hassaballa, M. Yakushiji, K. Tomita, Y.-K. Kim, K. Uchino, K. Muraoka
Kyushu Univ., Japan

14:40
PDP2 - 3 **High Efficient Positive Column Discharge Driven by New Low-Voltage Driving Scheme for AC PDP**

H. Kim, K.-H. Park, J. Y. Kim, H.-S. Tae
Kyungpook Nat. Univ., Korea

Author Interviews
17:00 - 18:00

Thursday, December 4

9:05 - 10:25 **Room 501**

PDP3/PH1: Phosphors for PDPs

Chair: L. F. Weber, Plasmaco, USA
Co-Chair: Y. Nakanishi, Shizuoka Univ., Japan

9:05
PDP3/PH1 - 1: ***Invited*** **Study of New Luminescent Materials for PDPs**

S. Kubota
Tohoku Univ., Japan

9:25
PDP3/PH1 - 2 **Oxidation of Doped Europium in $BaMgAl_{10}O_{17}$ by Annealing Studied with X-ray Absorption Fine Structure Measurement**

I. Hirosawa, T. Honma, K. Kato, N. Kijima, Y. Shimomura***
Japan Synchrotron Radiation Res. Inst., Japan
**Mitsubishi Chem., Japan*
***Kasei Optonix, Japan*

9:45
PDP3/PH1 - 3 **Characterization of $(Y,Gd)(P,V)O_4$:Eu for PDP Red Phosphor**

C. Okazaki, T. Suzuki, M. Shiiki
Hitachi, Japan

10:05
PDP3/PH1 - 4 **Luminescent Characteristics of Gd-Codoped $CaMgSi_2O_6:Eu^{2+}$ Phosphors**

E. Hata, T. Kunimoto, M. Tanaka, S. Yamaguchi, K. Ohmi, S. Tanaka, H. Kobayashi*
Tottori Univ., Japan
**Sumitomo Chem., Japan*

Author Interviews
17:00 - 18:00

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster PDPp1: Poster (1)

PDPp1 - 1 **Optical Filter for Plasma Display Panels Using Organic Dyes and Conductive Mesh Layers by Roll-to-Roll Etching**

T. Okamura, T. Kitagawa, K. Koike, S. Fukuda
Mitsui Chems., Japan

PDPp1 - 2 **High Performance Optical Filter for PDP**

Y. Nakatsugawa, A. Tsuzuki, I. Inoue, Y. Suzuura
Dai Nippon Printing, Japan

PDPp1 - 3 **Influence of Image Sticking on Electro-Optical Characteristics in AC PDPs**

J. H. Choi, K. B. Jung, Y. Jung, S. B. Kim, E. H. Choi
Kwangwoon Univ., Korea

PDPp1 - 4 **Image Sticking Phenomena of Adjacent Cells Induced by Iterant Discharge Cells in 42-in. PDP TV**

J.-W. Han, H.-S. Tae, S.-I. Chien
Kyungpook Nat. Univ., Korea

PDPp1 - 5 **Investigation on Radiation Characteristics of 42-in. PDP**

H. Y. Lim, M. S. Kim, J. H. Lee
Hongik Univ., Korea

PDPp1 - 6 **Error Diffusion Techniques for Reproduction of Smooth Gray Level in Dark Areas on PDP**

J. Y. Cho, C.-W. Kim
Inha Univ., Korea

PDPp1 - 7 **Detection and Compensation of Dynamic False Contours in PDP**

S. J. Ahn, C. S. Kim, S. U. Lee*
Seoul Nat. Univ., Korea
**Chinese Univ. of Hong Kong, Hong Kong*

PDPp1 - 8 **Selective Reset Waveform for Improving Dark Room Contrast Ratio in AC PDP**

B.-G. Cho, H.-S. Tae, S.-I. Chien
Kyungpook Nat. Univ., Korea

PDPp1 - 9 **Reduction of Low Gray-Level Contours Using 9-Subfield System and Error Diffusion in PDP**

S. J. Kang, H. C. Do, B. G. Cho, S. I. Chien, H. S. Tae
Kyungpook Nat. Univ., Korea

PDPp1 - 10 **AC PDP Gray Scale Implementation by Selective Erase Mode Quantized Memory Addressing with Three Wall Charge States**

Y.-H. Jung, S.-I. Kim, J. Y. Jeong
Univ. of Suwon, Korea

PDPp1 - 11 **Color Compensation Method for Non-Contact Color Inspection System Using Area Camera for PDP TV**

W.-S. Kim, H.-C. Do, S.-I. Chien, H.-S. Tae
Kyungpook Nat. Univ., Korea

PDPp1 - 12 **Flicker Index Method for Evaluating Flicker in Color PDP**

X. Zhang, C. Liu, Z. Liu, J. Zhang
Xi'an Jiaotong Univ., China

PDPp1 - 13 **Improvement of Discharge Characteristics of Zn_2SiO_4:Mn by Surface Modification with Metal Oxides**

G. Y. Hong, B. Y. Jeong, J. S. Yoo
Chung-Ang Univ., Korea

PDPp1 - 14 **Adjustment of Driving Characteristics by Modification of Phosphor Surface in AC PDP**

I. Ozaki, N. Hori, Y. Kawanami, C. Okazaki, M. Shiiki**
Fujitsu Hitachi Plasma Display, Japan
**Hitachi, Japan*

PDPp1 - 15 **Measurement of Ion-Induced Secondary Electron Emission Coefficient γ_i, Work Function, and Discharge Voltage of Vacuum and Air Annealed MgO Protective Layer in AC PDP**

J. Y. Lim, H. S. Jeong, W. B. Park, J. S. Oh, E. H. Choi
Kwangwoon Univ., Korea

PDPp1 - 16 **Influences of Degradation of MgO and Phosphor on Ion-Induced Secondary Electron Emission Coefficient and Basic Discharge Characteristics in AC PDP**

H. S. Jeong, J. Y. Lim, W. B. Park, J. H. Choi, E. H. Choi
Kwangwoon Univ., Korea

PDPp1 - 17 **Influence of Secondary Electron Emission Coefficient of MgO Protective Layer on Electrical Discharge Characteristics in AC PDP**

K. B. Jung, J. H. Choi, S. B. Kim, H. S. Jeong, W. B. Park,
G. S. Cho, E. H. Choi
Kwangwoon Univ., Korea

PDPp1 - 18 **Measurement of Oblique Ion-Induced Secondary Electron Emission Coefficient γ_i**

W. B. Park, H. S. Jeong, J. C. Jeong, J. S. Oh, J. Y. Lim,
J. W. Cho, G. S. Cho, E. H. Choi
Kwangwoon Univ., Korea

PDPp1 - 19 **Secondary Electron Emission Characteristics of $MgAl_2O_4$ as Protecting Layer for AC PDPs**

T. Hirakawa, H. Shinoda, T. Tezuka, H. Uchiike
Saga Univ., Japan

PDPp1 - 20 **Verification of Secondary Electron Emission Coefficients Calculated by Empirically Obtained Formula through 2D Discharge Simulation**

S. K. Lee, J. K. Kim, J. H. Ryu, H. S. Bae, J. Lee*,*
*K.-W. Whang**
LG Elect., Korea
**Seoul Nat. Univ., Korea*

PDPp1 - 21 **Water-Jet Etching Characterisitics of Aqueous-Based Green Tape for Fabrication of Barrier Ribs of PDP**

Y. Cho, Y.-S. Kim
Hongik Univ., Korea

PDPp1 - 22 **Electrical and Optical Characteristics Depending on Base Vacuum Level of Vacuum-In-line Sealed PDP**

*S. J. Kwon, J. H. Kim, T. H. Kim, B. K. Shon, H. C. Yang, K. W. Whang**
Kyung-Won Univ., Korea
**Seoul Nat. Univ., Korea*

- - Lunch - -

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster PDPp2: Poster (2)

PDPp2 - 1 **Optical Characteristics of In-Bus Structure with High Xe Mixture Gases**

J. Kang, S. C. Choi, W. K. Min, J. W. Song, J. B. Park, J. R. Lim, E. H. Yoo
LG Elect., Korea

PDPp2 - 2 **A New Cross-Shaped Cell Structure for High Luminous Efficiency in AC PDP**

B.-S. Kim, K.-D. Cho, H.-S. Tae, Y.-M. Kim, S.-H. Jang**
Kyungpook Nat. Univ., Korea
**Samsung Advanced Inst. of Tech., Korea*

PDPp2 - 3 **Cell Optimization of PDP with Honeycomb Rib Structure**

C. K. Pan, A. Lin, D. Su, E. Shu, C. P. Ho
AU Optronics, Taiwan

PDPp2 - 4 **Application of Micro Hollow Holes on Sustain Electrodes to Improve Discharge Characteristics in PDP**

K. W. Park, T. I. Lee, H. I. Park, H. K. Baik
Yonsei Univ., Korea

PDPp2 - 5 **Discharge Efficiency Improvement in PDPs**

T. Dekker, G. Oversluizen, S.T. de Zwart
Philips Res. Labs., The Netherlands

PDPp2 - 6 **Long Gap Discharge with Triggering Controlled by Short Pulses for AC PDPs**

A. Lacoste, L. Tessier, D. Gagnot, H. Doyeux
Thomson Plasma, France

PDPp2 - 7 **High Luminous Efficient AC PDP Optimized for High Xe Discharge Gas**

T. J. Kim, H. S. Bae, D. C. Jeong, K. W. Whang
Seoul Nat. Univ., Korea

PDPp2 - 8 **High Speed Addressing Using Auxiliary Electrodes in High Efficiency PDP with Coplanar 200μm-Gap**

B. J. Kim, J. H. Lee, S. H. Lee, S. Y. Park, B. J. Shin, K. C. Choi
Sejong Univ., Korea

PDPp2 - 9 **Discharge Characteristics of Coplanar Long-Gap Electrodes in AC PDP with High Xe Content**

J. H. Lee, S. D. Park, B. J. Shin, K. C. Choi
Sejong Univ., Korea

PDPp2 - 10 **Influence of Sustaining Electrode Structure on Emission Characteristics in Surface Discharge PDPs**

T. Hirakawa, T. Tezuka, H. Shinoda, H. Uchiike
Saga Univ., Japan

PDPp2 - 11 **Influence of Dielectric Thickness on Electro-Optical Characteristics in AC PDP**

S. B. Kim, K. B. Jung, J. H. Choi, Y. Jung, E. H. Choi
Kwangwoon Univ., Korea

PDPp2 - 12 **Simulation Studies on Influence of He Concentration on Discharge Characteristics of AC PDPs in (He$_X$-Ne$_{1-X}$)-Xe Mixture**

I. S. Lee, S. J. Yoon, K. Y. Choi
LG Elect., Korea

PDPp2 - 13 **Xe Content and Working Gas Pressure Dependence on Surface Type AC Positive Column Micro-Discharge**

J. Y. Kim, H. Kim, H.-S. Tae
Kyungpook Nat. Univ., Korea

PDPp2 - 14 **Optimized Design for Energy Recovery Circuits in PDP Driving System**

S. Liu, X. Yan, W. Feng
TCL Multimedia Elect., China

PDPp2 - 15 **Development of Infrared Thomson Scattering System for Diagnostics of PDP Micro-Discharge Plasma**

K. Tomita, Y.-K. Kim, S. Hassaballa, K. Uchino, K. Muraoka
Kyushu Univ., Japan

PDPp2 - 16 **Three-Dimensional Measurement of Electron Temperature and Plasma Density in Coplanar AC PDPs**

I. R. Cho, M. W. Moon, Y. Seo, G. S. Cho, E. H. Choi
Kwangwoon Univ., Korea

PDPp2 - 17 **Diagnostics of Three Dimensional Behaviors of Sustain Discharge in AC PDP with Auxiliary Pulses**

Y. Shintani, S. Kawai, K. Tachibana, T. Sakai, N. Kosugi***
Kyoto Univ., Japan
**Display Res. Labs., Japan*
***Matsushita Elec. Ind., Japan*

PDPp2 - 18 **3-D Simulation of Sustain Discharge with Auxiliary Pulse in AC PDP**

*Y. Hirano, Y. Murakami, K. Ishii, K. Tachibana**
NHK, Japan
**Kyoto Univ., Japan*

PDPp2 - 19 **Modeling of Micro Discharge in Radio Frequency Coplanar PDP**

M. Hiranuma, S. Uchida, F. Tochikubo, T. Watanabe
Tokyo Metropolitan Univ., Japan

PDPp2 - 20 **New Self-Erasing Discharge Mode for Improving Luminous Efficiency without Reduction of Driving Margin in AC PDP**

B.-G. Cho, H.-S. Tae, S.-I. Chien
Kyungpook Nat. Univ., Korea

PDPp2 - 21 **Improvement of Color Temperature Using Auxiliary Address Pulse Driving Scheme in 42-in. WVGA Plasma Display Panel**

K.-H. Park, E.-C. Lee, K.-D. Cho, H.-S. Tae, S.-I. Chien
Kyungpook Nat. Univ., Korea

PDPp2 - 22 **Effects of a Bias-Modulation Method on Modified Sustain Pulse**

B. J. Rhee, S. H. Lee, Y. Y. Choi, J. S. Jung, Y. D. Kang, Y. K. Lee
LG Elect., Korea

PDPp2 - 23 **New Driving Method for Reducing Address Period of AC PDP**

G. S. Kim, H.-Y Choi, J.-H. Seo, S.-H. Lee*
Inha Univ., Korea
**Univ. of Incheon, Korea*

PDPp2 - 24 **Analysis of Wall Voltage Controllability by RMSP (Ramp Biased Multiple Short Pulses) Reset Pulse in AC PDP**

J. H. Yang, J. S. Kim, J. C. Jung, K.-W. Whang
Seoul Nat. Univ., Korea

PDPp2 - 25 **Characterization of Stairway Waveform Sustaining Pulse for AC PDP**

H.-S. Kim, J.-S. Lim, J.-Y. Kim
Sejong Univ., Korea

Author Interviews
17:00 - 18:00

Friday, December 5

9:00 - 10:20 **Room 501**

PDP4: Discharge Gases & Components

Chair: H. Tolner, Large Flat Display Tech. Consultant, The Netherlands
Co-Chair: M. Uchidoi, Pioneer, Japan

9:00
PDP4 - 1 **Discharge Characteristics of Ne+Xe+N_2 Gas Mixtures**

S. M. Hong, S. D. Park, B. J. Shin, J. Kang, E.-H. You*, K. C. Choi*
Sejong Univ., Korea
**LG Elect., Korea*

9:20
PDP4 - 2 **Optical Characteristics and Luminous Efficacy of Ne-Buffered N_2 AC PDP**

H. Hatanaka, Y. M. Kim, S. H. Son, S. H. Jang, G. Y. Kim, H. B. Park, X. Q. Zeng, K. M. Chung, K. D. Kang, E. G. Heo**
Samsung Advanced Inst. of Tech., Korea
**Samsung SDI, Korea*

9:40
PDP4 - 3 **Development of 256-Output SOI PDP Address Driver IC for Tape Carrier Package**

K. Takasugi, A. Hosokawa, A. Fujiwara, K. Takahashi
NEC Elect., Japan

10:00
PDP4 - 4 **Newly Developed Optical Filter for Attaching Directly on Plasma Panel**

K. Koike, T. Shinozaki, H. Saigou, T. Okamura,
T. Kitagawa, S. Fukuda
Mitsui Chems., Japan

- - Break - -

10:40 - 12:00 **Room 501**

PDP5: Physical Properties of MgO Thin Films

Chair: L. JY Lu, AU Optronics, Taiwan
Co-Chair: H. Uchiike, Saga Univ., Japan

10:40
PDP5 - 1 **Study of Evaporated MgO Thin Film by Cathodoluminescence**

T. Hirakawa, H. Uchiike
Saga Univ., Japan

11:00
PDP5 - 2 **Effect of Carbon Nanotube on Luminance Efficiency of AC PDPs**

K.-S. Yoo, Y.-S. Kim
Hongik Univ., Korea

11:20
PDP5 - 3 **Energy Distribution of Ion-Induced Secondary Electron Emission from MgO Thin Films**

T. Tsujita, T. Nagatomi, Y. Takai, Y. Morita, M. Nishitani*,*
M. Kitagawa, T. Uenoyama***
Osaka Univ., Japan
**Matsushita Elec. Ind., Japan*
***Panasonic AVC Networks, Japan*

11:40
PDP5 - 4 **Comparison of Simulation for Ion Angle and Energy Distributions at the Cathode to Experimentally Measured Results for Excited Xe Species in a PDP Cell**

S. S. Yang, S. W. Ko, S. Mukherjee, J. K. Lee
Pohang Univ. of Sci. & Tech., Korea

- - Lunch - -

14:00 - 15:20 **Room 501**

PDP6: New Concept PDPs & Manufacturing Processes

Chair: R. L. Johnson, Info Tech., USA
Co-Chair: K. Nunomura, NEC Plasma Display, Japan

14:00
PDP6 - 1: ***Invited*** **Luminance Characteristics of Closed-Cell Type Barrier Ribs Processed by Capillary Molding Process**

Y.-S. Kim, K.-I. Kim, T.-J. Chang, Y. Cho, S.-H. Yoon
Hongik Univ., Korea

14:20
PDP6 - 2 **Full Plated Metal Electrodes for PDPs**

S. Fukuta, K. Sugawa, K. Inoue, S. Kasahara, K. Sakita, K. Betsui*
Fujitsu Labs., Japan
**Fujitsu Hitachi Plasma Display, Japan*

14:40
PDP6 - 3 **Development of AC PDP with New Structure Using Thick-Film Ceramic Sheet Technology**

H. Asai, S. Ajisaka, A. Oku, S. Mori, K. Ikesue, S. Mori, K. Tanaka, N. Kikuchi, M. Hiroshima, S. Sakamoto
Noritake, Japan

15:00
PDP6 - 4 **Highly Luminous 1-Meter Fine Plasma Tube Array for Wall Display**

Y. Yamazaki, K. Shinohe, A. Tokai, H. Hirakawa, H. Yamada, M. Ishimoto, K. Awamoto, T. Shinoda
Fujitsu Labs., Japan

Author Interviews
17:00 - 18:00

Sponsor:
Plasma Display Technical Meeting

Saga Forum

One Day PDP Forum and After Dinner Discussion
December 6, 2003
Takeo Hot Spring, Saga

Detail information will be sent
by E-mail.

Plasma Display Tecnnical Meeting

Workshop on EL Displays, LEDs and Phosphors

Wednesday, December 3

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster PHp: ELDs & Phosphors

PHp - 1 **Fabrication of Y_2O_3:Eu Nano-Thin-Film Phosphor by Using RF Magnetron Sputtering Method**

N. Tsukahara, O. Miura, H. Murakami
ULVAC, Japan

PHp - 2 **Luminescence Properties of Nano-Particle Phosphor Added Conductive Materials**

M. Hirakawa, O. Miura, H. Murakami
ULVAC, Japan

PHp - 3 **Improvement of Light Emission Efficiency of TiO_2:Sm Nano-Thin-Film Phosphor**

C. Koakutsu, O. Miura, H. Murakami
ULVAC, Japan

PHp - 4 **Luminescence Enhancement of Ba in $SrTiO_3$:Pr, Al Red Phosphor for Field Emission Display**

K. B. Kim, J. E. Lee, C. W. Won*, S. Y. Kang, Y. H. Song, K. W. Koo***
ETRI, Korea
**Chungnam Nat. Univ., Korea*
***Youngdong Univ., Korea*

PHp - 5 **The Origin of Cathodoluminescence Enhancement of ZnS:Ag,Cl Surface-Treated by Using a Combination of Stirring and Ultrasonication in KOH Solutions**

D. C. Lee, S. A. Bukesov, D. H. Park, S. Lee, J. H. Kang, W. B. Im, D. Y. Jeon*
KAIST, Korea
**Seoul Semiconductor, Korea*

PHp - 6 **The Effect of the Crystal Structure on the PL Intensity of Eu Doped Metal Ortho-Vanadates**

J. H. Kang, W. B. Im, D. C. Lee, D. Y. Jeon
KAIST, Korea

PHp - 7 **An ac-Powder Electroluminescent Flexible Display**

S. Okamoto, K. Tanaka, Y. Izumi
NHK, Japan

PHp - 8 **Characteristics of AlON-TiON Insulators for Inorganic Electroluminescent Display**

J. W. Lim, S. J. Yun, J. H. Lee
ETRI, Korea

PHp - 9 **Improvement of Electroluminescent Properties by RF-Sputtered SiN_X:Ta,Zr Insulating Layers**

S. Tokunaga,**, A. Mikami**
**Kanazawa Inst. of Tech., Japan*
***Sanyo Elec., Japan*

PHp - 10 **Eu-Activated Ga_2O_3-SnO_2 Multicomponent Oxide Thin-Film Electroluminescent Phosphors**

T. Minami, Y. Suzuki, T. Miyata
Kanazawa Inst. of Tech., Japan

PHp - 11 **Fabrication of SrS:Cu,F Thin-Film EL Devices with MOS Structure on Si Substrate**

S. Hakamata, M. Ehara, H. Fukada, H. Kominami,
*Y. Nakanishi, Y. Hatanaka**
Shizuoka Univ., Japan
**Aichi Univ. of Tech., Japan*

PHp - 12 **Effect of Driving Frequency on the EL Characteristics of Y_2O_3-Based Phosphor TFEL Devices Using a Thick-Ceramic Insulator**

T. Minami, Y. Suzuki, T. Miyata
Kanazawa Inst. of Tech., Japan

Thursday, December 4

9:00 - 9:05 **Room 501**

Opening

9:00
Opening Remarks
H. Kobayashi, Workshop Co-Chair

9:05 - 10:25 **Room 501**

PDP3/PH1: Phosphors for PDPs

Chair: L. F. Weber, Plasmaco, USA
Co-Chair: Y. Nakanishi, Shizuoka Univ., Japan

9:05
PDP3/PH1 - 1: ***Invited*** **Study of New Luminescent Materials for PDPs**

S. Kubota
Tohoku Univ., Japan

9:25
PDP3/PH1 - 2 **Oxidation of Doped Europium in $BaMgAl_{10}O_{17}$ by Annealing Studied with X-ray Absorption Fine Structure Measurement**

I. Hirosawa, T. Honma, K. Kato, N. Kijima, Y. Shimomura***
Japan Synchrotron Radiation Res. Inst., Japan
**Mitsubishi Chem., Japan*
***Kasei Optonix, Japan*

9:45
PDP3/PH1 - 3 **Characterization of $(Y,Gd)(P,V)O_4$:Eu for PDP Red Phosphor**

C. Okazaki, T. Suzuki, M. Shiiki
Hitachi, Japan

10:05
PDP3/PH1 - 4 **Luminescent Characteristics of Gd-Codoped $CaMgSi_2O_6:Eu^{2+}$ Phosphors**

E. Hata, T. Kunimoto, M. Tanaka, S. Yamaguchi, K. Ohmi, S. Tanaka, H. Kobayashi*
Tottori Univ., Japan
**Sumitomo Chem., Japan*

- - Break - -

10:40 - 12:00 **Room 501**

PH2: ELDs & Phosphors for FEDs

Chair: X. Wu, iFire Tech., Canada
Co-Chair: M. Shiiki, Hitachi, Japan

10:40
PH2 - 1: ***Invited*** **Defect Reduction and Blue Phosphor Performance Improvement for TDEL Displays Using Color by Blue**

H. Abe, I. Yoshida, H. Hamada, D. Luke, J. Acchione*, Y. Xin**
Sanyo Elec., Japan
**iFire Tech., Canada*

11:10
PH2 - 2 **Green Electroluminescence of $EuGa_2S_4$ Thin Film**

K. Tanaka, S. Okamoto
NHK, Japan

11:30
PH2 - 3: ***Invited*** **Low Voltage Cathodoluminescent Properties of Phosphors Synthesized by Liquid Phase Reaction**

H. Kominami, Y. Nakanishi
Shizuoka Univ., Japan

- - Lunch - -

13:50 - 15:30 **Room 501**

PH3: ELDs

Chair: A. M. Srivastava, General Elect., USA
Co-Chair: A. Mikami, Kanazawa Inst. of Tech., Japan

13:50
PH3 - 1: ***Invited*** **Color by Blue – A New Method of Achieving Full Color for Inorganic EL**

X. Wu, A. Nakua, D. Cheong
iFire Tech., Canada

14:20
PH3 - 2: ***Invited*** **GaN Phosphors and Black-Thick-Dielectric Electroluminescent Displays**

*J. Heikenfeld, A. J. Steckl**
Extreme Photonix, USA
**Univ. of Cincinnati, USA*

14:50
PH3 - 3 **Improvement in Reproducibility of Bluish-Green Ce^{3+} Luminescence by H_2O Supply in Electron-Beam Evaporated SrS:Ce Thin Film Electroluminescent Devices**

K. Takasu, S. Usui, H. Oka, K. Ohmi, S. Tanaka, H. Kobayashi
Tottori Univ., Japan

15:10
PH3 - 4 **Structural and Luminescent Characteristics of $(Sr_{1-X}Ca_X)$S:Cu,F TFEL Devices**

*M. Ehara, S. Hakamata, H. Fukada, H. Kominami, Y. Nakanishi, Y. Hatanaka**
Shizuoka Univ., Japan
**Aichi Univ. of Tech., Japan*

- - Break - -

15:40 - 17:00 **Room 501**

PH4: LEDs & Phosphors

Chair: H. Yamamoto, Tokyo Univ. of Tech., Japan
Co-Chair: J. Heikenfeld, Extreme Photonix, USA

15:40
PH4 - 1: ***Invited*** **Technologies for High-Efficiency Light-Emitting Diodes**

G. Hatakoshi
Toshiba Res. Consulting, Japan

16:10
PH4 - 2 **Red, Green and Blue Oxide Phosphor Thin Films Prepared by Pulsed Laser Deposition Technique**

T. Ishisaka, T. Kunimoto, M. Mizuno, K. Ohmi, S. Tanaka, H. Kobayashi*
Tottori Univ., Japan
**Sumitomo Chem., Japan*

16:30
PH4 - 3: ***Invited*** **Phosphors for UV LED: White Light Emitting Devices**

A. M. Srivastava
General Elec., USA

Author Interviews
17:00-18:00

Sponsors:
The 125th Research Committee on Mutual Conversion between Light and Electricity, JSPS
Phosphor Research Society, ECSJ

Workshop on Field Emission Display

Friday, December 5

9:00 - 9:10 **Room 411+412**

Opening

9:00
Opening Remarks
K. Yokoo, Workshop Chair

9:10 - 10:20 **Room 411+412**

FED1: FEDs

Chair: J. Ishikawa, Kyoto Univ., Japan
Co-Chair: K. Shibayama, Mitsubishi Elec., Japan

9:10
FED1 - 1: ***Invited*** **Low Temperature CNT FED**

J.-J. Kim, S. Kang, A. Chang, W. Son, C. Bae, J. Yi, M. Kim, S. Yoon, C. R. Lee
cDream, USA

9:35
FED1 - 2 **CNT Field Emission Video Display**

L. H. Thuesen, D. S. Mao, V. Ginsberg, M. Yang, Y. J. Li, R. L. Fink, Z. Yaniv
Appl. Nanotech, USA

9:50
FED1 - 3 **8-in. QVGA CNT FED of Normal Triode Structure**

M.-C. Hsiao, Y.-Y. Chang, C.-T. Lee, W.-Y. Lin, J.-R. Sheu, J.-H. Liao, C.-S. Chao, S.-C. Jiang, J.-C. Ho, S.-M. Huang, Y.-X. Chen, H.-C. Cheng, Y.-J. Shiau, W.-K. Huang, L.-Y. Chiang, C.-C. Lee
ERSO/ITRI, Taiwan

10:05
FED1 - 4 **Development of 7.6-in. Diagonal Full Color Ballistic Electron Surface-Emitting Display on PDP-Grade Glass Substrate**

T. Ichihara, Y. Honda, T. Hatai, T. Baba, Y. Takegawa, Y. Watabe, K. Aizawa, T. Komoda, V. Vezin, N. Koshida**
Matsushita Elec. Works, Japan
**Tokyo Univ. of A&T, Japan*

- - Break - -

10:35 - 11:50 **Room 411+412**

FED2: Emitter Materials

Chair: T. Asano, Kyushu Inst. of Tech., Japan
Co-Chair: H. Mimura, Shizuoka Univ., Japan

10:35
FED2 - 1 **Field Emission Electron Source by Using Graphite Nano-Structure**

*T. Matsumoto, H. Mimura**
Stanley Elec., Japan
**Shizuoka Univ., Japan*

10:50
FED2 - 2 **Effect of Laser Irradiation on CNT-Cathodes in Different Atmospheres**

W. Rochanachirapar, Y. Kanazawa, W. J. Zhao, M. Takai
Osaka Univ., Japan

11:05
FED2 - 3 **Comparison of Field Emission Characteristics of Transition Metal Nitrides and Carbides**

Y. Gotoh, M. Y. Liao, H. Tsuji, J. Ishikawa
Kyoto Univ., Japan

11:20
FED2 - 4 **Electron Field Emission from Boron Nitride Nanofilm Synthesized by Plasma-Assisted CVD**

S. Funakawa, H. T. Luo, C. Kimura, T. Sugino
Osaka Univ., Japan

11:35
FED2 - 5 **Fabrication of Thermal Field Emitter by Using Yttrium Oxide**

T. Kawakubo, Y. Saito, N. Miyamoto, H. Nakane, H. Adachi*
Muroran Inst. of Tech., Japan
**Tohken, Japan*

- - Lunch - -

14:05 - 15:05 **Room 411+412**

FED3: Emitter Fabrication Technologies

Chair: M. Takai, Osaka Univ., Japan
Co-Chair: N. Egami, NHK, Japan

14:05
FED3 - 1 **Fabrication of Advanced Transfer Metal Mold FEA**

M. Nakamoto, K. Fukuda, M. Higa
Toshiba, Japan

14:20
FED3 - 2 **Fabrication of Electron Source for FED Using CNT Grown by Thermal CVD**

T. Shiroishi, T. Sawada, M. Tarutani, A. Hosono, S. Nakata
Mitsubishi Elec., Japan

14:35
FED3 - 3 **Gated Cold Cathode Array with Carbonic Nano-Pillars Formed by O_2 RIE for FED Application**

T. Yoshida, A. Baba, T. Asano
Kyushu Inst. of Tech., Japan

14:50
FED3 - 4 **Optimization of FEA Fabricated by Using Beam Assisted Process**

K. Murakami, N. Yamasaki, W. Jarupoonphol, Y. Tate, M. Takai
Osaka Univ., Japan

- - Break - -

15:20 - 17:00 **Room 411+412**

FED4: FED Fabrication Technologies

Chair: J.-J. Kim, cDream, USA
Co-Chair: M. Nakamoto, Toshiba, Japan

15:20
FED4 - 1: ***Invited*** **Improvement of Pixel Uniformity in CNT Lighting Tubes Used for Large-Scale Tiled Displays**

*K. Shibayama, A. Hosono, S. Nakata, S. Okuda, Y. Imai, T. Iwata, M. Takai**
Mitsubishi Elec., Japan
**Osaka Univ., Japan*

15:45
FED4 - 2 **Feasibility Study on Graphite Nanofiber FED**

M. Ushirozawa, M. Yamamoto, T. Takei, K. Hagiwara, Y. Murakami, T. Yamamoto, M. Hirakawa, H. Nakano*, O. Miura*, H. Murakami*, K. Okasaka**, K. Azami**, K. Kaneko**, T. Sasaki***
NHK, Japan
**ULVAC, Japan*
***ULVAC Coating, Japan*

16:00
FED4 - 3 **Fabrication of Triode Structure Graphite Nanofiber FED**

H. Nakano, M. Hirakawa, O. Miura, H. Murakami, K. Okasaka, K. Kaneko*, A. Azami*, T. Sasaki*, K. Hagiwara**, M. Ushirozawa**, M. Yamamoto**, T. Yamamoto***
ULVAC, Japan
**ULVAC Coating, Japan*
***NHK, Japan*

16:15
FED4 - 4 **Active-Matrix CNT FED Driven by LTPS-TFT**

Y. W. Wang, C. Y. Huang, H. Y. Tseng, C. M. Cheng, C. S. Chao, W. Y. Lin, H. Y. Cheng, C. T. Lee, C. Y. Chang, Y. Y. Chang, J. C. Ho, M. C. Hsiao, C. C. Cheng, Y. F. Wu, C. C. Lee
ERSO/ITRI, Taiwan

16:30
FED4 - 5 **Novel Tetrode Structure for FEDs Using CNT**

H. T. Chun, H. Jeong, W. S. Seo, J. W. Park, N. J. Koh,*
D. J. Lee, D. G. Lee**
LG.Philips Displays, Korea
**Kumoh Nat. Inst. of Tech., Korea*

16:45
FED4 - 6 **2-in. CNT FED Fabricated by Using Screen Printing Method and Vacuum In-Line Sealing Technology**

S. J. Kwon, T. H. Kim, B. K. Shon, E. S. Cho, J. D. Lee*,*
*H. S. Uh**, S. H. Cho***, C. G. Lee****
Kyung-Won Univ., Korea
**Seoul Nat. Univ., Korea*
***Sejong Univ., Korea*
****Samsung SDI, Korea*

Author Interviews
17:00 - 18:00

Sponsors:
158th Committee on Vacuum Nanoelectronics, JSPS
’03 Asian Vacuum Microelectronics Conference

Late-News Papers

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http://idw.ee.uec.ac.jp/

Workshop on Organic EL Displays

Wednesday, December 3

10:40 - 12:05 **Room 409+410**

OEL1: Materials

Chair: T. Tsutsui, Kyushu Univ., Japan
Co-Chair: J. Kido, Yamagata Univ., Japan

10:40
OEL1 - 1: ***Invited*** **Recent Progress of New Light-Emitting Polymers**

S. Doi, C. Sekine, Y. Tsubata, M. Ueda, T. Noguchi,
T. Ohnishi
Sumitomo Chem., Japan

11:00
OEL1 - 2: ***Invited*** **Exciton Annihilation at High Current Density in Organic Light Emitting Diodes**

C. Adachi,**, Y. Kawamura*,**, H. Yamamoto**
**Chitose Inst. of Sci. & Tech., Japan*
***Japan Sci. & Tech., Japan*

11:20
OEL1 - 3 **High Efficiency, Long-Lived Electrophosphorescent OLEDs for Both Active and Passive Matrix Displays**

R. C. Kwong, Y.-J. Tung, J. Brooks, M. S. Weaver,
V. Adamovich, M. R. Nugent, J. J. Brown
Universal Display, USA

11:35
OEL1 - 4 **Novel Host and Blocking Materials for Efficient and Stable Phosphorescent OLED Devices**

H. Vestweber, I. Bach, H. Becker, R. Fortte, O. Gelsen,
A. Gerhard, S. Heun, P. Stoessel, M. Sakamoto
Covion Organic Semiconductors, Germany

11:50
OEL1 - 5 **Efficient Organic EL Devices with New Electron Transport Materials**

K. Fukuoka, M. Matsuura, M. Funahashi, H. Yamamoto,
C. Hosokawa
Idemitsu Kosan, Japan

- - Lunch - -

BANQUET

Wednesday, December 3
18:40 – 20:30
Hotel Okura Fukuoka

See page 6 for details

13:50 - 15:15 **Room 409+410**

OEL2: Devices (1)

Chair: H. Murata, JAIST, Japan
Co-Chair: H. Takahashi, Sanyo Elec., Japan

13:50
OEL2 - 1: ***Invited*** **Multiphoton Emission OLED: Structure and Property**

*T. Matsumoto, T. Nakada, J. Endoh, K. Mori, N. Kawamura, A. Yokoi, J. Kido**
IMES, Japan
**Yamagata Univ., Japan*

14:10
OEL2 - 2: ***Invited*** **Flexible OLED Display Using Plastic Substrate**

T. Miyake, A. Yoshida, T. Yoshizawa, A. Sugimoto, H. Kubota, T. Miyadera, M. Tsuchida, H. Nakada
Pioneer, Japan

14:30
OEL2 - 3 **High Efficiency White-Light-Emitting Organic Electroluminescent Devices Based on New Color-Mixing Techniques**

A. Mikami, A. Okada, T. Tsubokawa
Kanazawa Inst. of Tech., Japan

14:45
OEL2 - 4 **Improvement of the External Extraction Efficiency of Organic LED by Using Pyramid Array**

N. Sone, Y. Kawakami
Stanley Elec., Japan

15:00
OEL2 - 5 **Status of OEL Display Production by OVPD and Scaling towards Next Generations**

M. Schwambera, M. Gersdorff, M. Meyer, M. Reinhold, G. Strauch, M. Heuken, R. Beccard, T. McEntee
Aixtron, Germany

- - Break - -

15:35 - 17:00 **Room 409+410**

OEL3: Devices (2)

Chair: C. Adachi, Chitose Inst. of Sci. & Tech., Japan
Co-Chair: M. Tsuchida, Pioneer, Japan

15:35
OEL3 - 1: ***Invited*** **Flexible Color OLED Display Based on Phosphorescent Polymers**

S. Tokito, M. Suzuki, T. Tsuzuki
NHK, Japan

15:55
OEL3 - 2: *Invited* **Enhanced Stability of Organic Light-Emitting Diodes Doped with Fluorescent Dye**

H. Murata
JAIST, Japan

16:15
OEL3 - 3 **Current Heating and Temperature Dependence of Lifetime in PLEDs**

M. Koden, Y. Fujita, S. Okazaki, S. Mitsui
Sharp, Japan

16:30
OEL3 - 4 **Total Solution Process of Solution-Processed Organic Electroluminescent Devices with Low- Molecular-Weight Organic Molecules**

M. Ooe, R. Satoh, T. Echigo, S. Naka, H. Okada,
H. Onnagawa, T. Miyabayashi,**, T. Inoue*,***
Toyama Univ., Japan
**Brother Inds., Japan*
***Japan Sci. & Tech., Japan*

16:45
OEL3 - 5 **Polymeric Semiconductor Devices Having Pattern and Layer-by-Layer Structure Made by Spray Deposition**

T. Ishikawa, M. Shakutsui, K. Fujita, T. Tsutsui
Kyushu Univ., Japan

Author Interviews
17:00 - 18:00

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster AMD/OELp: Active-Matrix OLED

AMD/OELp - 1 **An Active Matrix OLED Display Employing an Improving Gray Scale Structure**

J.-Y. Hu. , C.-S. Yang., W.-T. Sun. , J.-S. Yu. , C.-S. Li. ,
J.-C. Tseng. , C.-C. Chen. , T.-S. Chui. , J.-J. Lih. ,
C.-F. Sung. , C.-H. Li. , S.-H. Li. , T.-H. Hsiao. , Y.-F. Wang
AU Optronics, Taiwan

AMD/OELp - 2 **AM-OLED Pixel Circuits Suitable for TFT Array Testing**

Y. Sakaguchi, D. Nakano
IBM Res., Japan

AMD/OELp - 3 **Design of a Novel 6-bit Current Data Driver System for AM-OLED**

W.C. Hsueh, C.Y. Meng, A. Shin, Y.M. Tsai*
Toppoly Optoelect., Taiwan
**Nat. Taiwan Univ., Taiwan*

AMD/OELp - 4 **A Self-Compensated Voltage Programming Pixel Structure for Active-Matrix Organic Light Emitting Diodes**

S. M. Choi, O. K. Kwon
Hanyang Univ., Korea

AMD/OELp - 5 **A High Uniformity Voltage Programmed Active-Matrix OLED**

J.-R. Shih, C.-R. Chen, C.-F. Chung, Y.-H. Yeh, J.-R. Lin,
C.-H. Liou, M.-D. Chen
ERSO/ITRI, Taiwan

AMD/OELp - 6 **Apparatus for Improving Yields of Active-Matrix OLED Panels**

C.-C. Kuo,**, W.-T. Liao*, H.-R. Han*, Y.-H. Yeh***,*
*W.-C. Wang**
**Windell, Taiwan*
***Nat. Chung Hsing Univ., Taiwan*
****ERSO/ITRI, Taiwan*

AMD/OELp - 7 **Active-Matrix Organic Light Emitting Diode Drive Circuit**

C.-C. Kuo,**, H.-R. Han*, W.-T. Liao*, M.-D. Chen***,*
*W.-C. Wang**
**Windell, Taiwan*
***Nat. Chung Hsing Univ., Taiwan*
****ERSO/ITRI, Taiwan*

AMD/OELp - 8 **A New Poly-Si TFT Based AM-OLED Driving Method with both Amplitude and Pulse Width Modulation**

J. Y. Jeong, J. Kim
Univ. of Suwon, Korea

AMD/OELp - 9 **Development of IR Drop Simulator for AM-OLED**

H. Miyazawa, S. B. You, J. W. Lee, C. H. Lee, K. B. Cheong,
J. H. Lee, N. Komiya
Samsung SDI, Korea

Thursday, December 4

9:00 - 10:25 **Main Hall**

AMD3/OEL4: AM-OLED (1)

Chair: K. Mameno, Sanyo Elec., Japan
Co-Chair: R. Hattori, Univ. of Tokyo, Japan

9:00
AMD3/OEL4 - 1: ***Invited*** **Technological Challenge toward AM-OLED TV**

T. Urabe
Sony, Japan

9:25
AMD3/OEL4 - 2 **Pixel Circuit for a-Si AM-OLED**

S. Ono, Y. Kobayashi, K. Miwa, T. Tsujimura
IDTech, Japan

9:45
AMD3/OEL4 - 3 **A Uniform 10-in. Color Active-Matrix OLED with New Pixel Driving Circuit**

Y.-H. Yeh, J.-R. Shilh, C.-R. Chen, Y.-H. Kuo, Y.-L. Liu,
C.-C. Chen, C.-F. Chung, C.-C. Chen, C.-Y. Hung,
H.-Y. Tseng, T.-H. Chen, M.-D. Chen
ERSO/ITRI, Taiwan

10:05
AMD3/OEL4 - 4 **Optimization of a Time Ratio Gray Scale Method for OLED Display**

T. Nanmoto, H. Hara, K. Takahashi, T. Iwashita, H. Hirayama, H. Kawai, S. Inoue, T. Shimoda
Seiko Epson, Japan

- - Break - -

10:40 - 12:05 **Main Hall**

AMD4/OEL5: AM-OLED (2)

Chair: T. Urabe, Sony, Japan
Co-Chair: H. Hamada, Sanyo Elec., Japan

10:40
AMD4/OEL5 - 1: ***Invited*** **High-Resolution AM-OLED Display Using White Emitter and Color Filter Array**

K. Mameno, S. Matsumoto, R. Nishikawa, T. Sasatani, T. Yamaguchi, K. Suzuki, Y. Hamada, N. Saito, K. Yoneda
Sanyo Elec., Japan

11:05
AMD4/OEL5 - 2 **A New 6-bit Digital-Type Current Driven Structure of OLED Display**

J.-C. Tseng, C.-S. Yang, W.-T. Sun, J.-S. Yu, C.-S. Li, C.-C. Chen, J.-Y. Hu, T,-S. Chui, J.-J. Lih, C.-F. Sung, C.-H. Li, S.-H. Li, T.-H. Hsiao, Y.-F. Wang
AU Optronics, Taiwan

11:25
AMD4/OEL5 - 3 **Comparison of Vth Compensation Ability Among Voltage Programming Circuits for AM-OLED Panels**

*N. Komiya, C. Y. Oh, K. M. Eom, J. T. Jeong, H. K. Chung, O. K. Kwon**
Samsung SDI, Korea
**Hanyang Univ., Korea*

11:45
AMD4/OEL5 - 4 **5-TFT Pixel Circuit Design For Active-Matrix Organic Light Emitting Diode Compensating Non-Uniformity of Poly-Si TFTs and OLEDs**

J.-H. Lee, W.-J. Nam, B.-H. You, M.-K. Han
Seoul Nat. Univ., Korea

Author Interviews
17:00 - 18:00

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster OELp: OEL Materials & Devices

OELp - 1 **Organic EL Devices Using New Iridium Complexes with Polymerizable Functional Group as One of the Ligands**

X. Wang, K. Ogino, K. Tanaka, H. Usui
Tokyo Univ. of A&T, Japan

OELp - 2 **Boron Compounds as Blue Emitting Materials for OLED**

H. H. Rho, M. K. Choi, Y. K. Ha
Hongik Univ., Korea

OELp - 3 **Preparation of Novel Red Light-Emitting Materials Based on a 2,1,3-Benzothiadiazole Unit and their Application to Organic Electroluminescent Devices**

S. Kato, T. Ishi-i, T. Thiemann, H. Sato, Y. Sato*, S. Mataka*
Kyushu Univ., Japan
**Mitsubishi Chem. Group Sci. & Tech. Res. Ctr., Japan*

OELp - 4 **Characterization of New Red Dopants for Red Color OLED**

H. H. Sung, I. H. Kim, K. N. Byun, M. S. Jang*, H. S. Yoo**
KETI, Korea
**SKC, Korea*

OELp - 5 **Structural Effect of BAlqs on the EL Performance of Phosphorescent Organic Electroluminescent Devices**

Y.-S. Wu, S.-F. Hsu, H.-H. Chen, C. H. Chen
Nat. Chiao Tung Univ., Taiwan

OELp - 6 **High Electron Mobility Triazine Derivative**

K. Yaguma, T. Ishi-i, T. Thiemann, M. Yashima, K. Ueno*,*
S. Mataka
Kyushu Univ., Japan
**Canon, Japan*

OELp - 7 **Analysis of the Deterioration Mechanism of Fluorescence OEL**

R. Kamoto, T. Matsunobe, M. Ichikawa**, Y. Taniguchi***
Micro Analysis Lab., Japan
**Toray Res. Ctr., Japan*
***Shinshu Univ., Japan*

OELp - 8 **Analysis on Permeation Properties of Thin Composite Film to Adopt the Passivation Layer of OLED**

K. H. Kim,**, Y. M. Kim*, J. K. Kim*, J. I. Han***, J. Jang**,*
*B. K. Ju**
**KIST, Korea*
***Kyung Hee Univ., Korea*
****KETI, Korea*

OELp - 9 **Thin-Film Passivation for Longevity of Organic Light-Emitting Devices**

S. H. Kim, Y. S. Yang, K. H. Kim, J. H. Youk, J. H. Lee,
S. C. Lim, T. Zyung
ETRI, Korea

OELp - 10 **Integrated I-V-B Measurement System for Measuring Characteristics of PMOLED Panels**

C. J. Juan,**, M. J. Tsai**, S. W. Hong*,***
**Hwa Hsia College of Tech. & Commerce, Taiwan*
***Nat. Taiwan Univ. of Sci. & Tech., Taiwan*

OELp - 11 **2.1-in. Passive Matrix ECR(Enhanced Contrast Ratio) OLED Using Black Layer Technology**

S. J. Kang, B. G. Roh, S. W. Kim, J. I. Kang, H. B. Jun,
*J. Y. E, K. S. Lee, H. S. Kim, H. E. Kim, Y. C. Cha, W. Y. Kim**
Hyundai LCD, Korea
**Luxell Tech., Canada*

OELp - 12 **The Use of Hybrid Drives in Reducing Power Consumption of Organic EL Passive Matrix Panels**

H. Ochi, S. Ishizuka, M. Tsuchida
Pioneer, Japan

OELp - 13 **Device Simulation of Multilayer Organic Light Emitting Diodes**

Y. Lee, J.-H. Park, D. H. Lim, J. S. Choi
Hongik Univ., Korea

OELp - 14 **Effect of ITO Surface Morphology to the Luminescent Property of the Thin Film OLED**

*Y. Fukushi, H. Kominami, Y. Nakanishi, Y. Hatanaka**
Shizuoka Univ., Japan
**Aichi Univ. of Tech., Japan*

IDW Tutorial in Japanese

Tuesday, December 2
Room 502 + 503,
Fukuoka International Congress Center

Detail information will be sent
by E-mail in October.

Contact address:

idw-tutorial@ml.labs.fujitsu.com

Workshop on 3D/Hyper-Realistic Displays and Systems

Wednesday, December 3

10:40 - 12:00 **Room 413+414**

3D1: 3D Displays (1)

Chair: J.-Y. Son, Hanyang Univ., Korea
Co-Chair: M. Okui, NHK, Japan

10:40
3D1 - 1: ***Invited*** **Mission and Practical Approaches of the "Consortium for 3-D Image Business Promotion"**

T. Honda,***
**Consortium for 3-D Image Business Promotion, Japan*
***Chiba Univ., Japan*

11:10
3D1 - 2: ***Invited*** **2D/3D Electronically Switchable Displays**

J. Mather, R. Winlow, A. Jacobs, G. Jones, D. Montgomery, M. Willis, L. Hill, M. Tillin, M. Khazova, G. Bourhill, A. Imai, T. Matsumoto*, Y. Koyama*, T. Takatani**
Sharp Labs. of Europe, UK
**Sharp, Japan*

11:40
3D1 - 3 **Recent Development of 3-D Displays Using LCD Technologies**

Y. Funazou,**, S. Takemoto*, K. Mashitani*, G. Hamagishi**
**Sanyo Elec., Japan*
***Nara Inst. of Sci. & Tech., Japan*

--Lunch--

13:50 - 15:20 **Room 413+414**

3D2: 3D Displays (2)

Chair: I. Yuyama, Utsunomiya Univ., Japan
Co-Chair: Y. Komiya, Olympus Optical, Japan

13:50
3D2 - 1: ***Invited*** **Projection Type Multiview Autostereoscopic Display with Single Projection Lens**

S. S. Kim, A. S. Shestak, K. H. Cha
Samsung Elect., Korea

14:20
3D2 - 2 **Moire Pattern Reduction in Full-Parallax Autostereoscopic Imaging Systems Using Two Crossed Lenticular Plates as a Viewing Zone Forming Optics**

*J.-Y. Son, V. Saveljev, S.-H. Shin, Y.-J. Choi, S.-S. Kim**
Hanyang Univ., Korea
**Samsung Elect., Korea*

14:40
3D2 - 3 **Natural 3D Display which Generates High-Density Directional Images and Human Accommodation Responses**

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

15:00
3D2 - 4 **Luminance Additivity in Compact Depth-Fused-3D Display Using a Stack of Two TN-LCDs**

M. Date, H. Takada, S. Suyama, K. Nakazawa
NTT, Japan

- - Break - -

15:40 - 17:00 **Room 413+414**

3D3: 3D Image Processing

Chair: T. Fujii, Nagoya Univ., Japan
Co-Chair: H. Yamanoue, NHK, Japan

15:40
3D3 - 1 **Comparison of Irregular-Quadtree Decomposition and Full-Search Block Matching for Intermediate Image Generation**

K. T. Kim,**, T. Yamazaki*, M. Minoh**
**Commun. Res. Lab., Japan*
***Hannam Univ., Korea*

16:00
3D3 - 2 **Offset Block Matching for Ray Space Interpolation**

M. Panahpour Tehrani, T. Fujii, M. Tanimoto
Nagoya Univ., Japan

16:20
3D3 - 3 **Fast Ray-Space Interpolation for Multi-View Video**

P. Na Bangchang, T. Fujii, M. Tanimoto
Nagoya Univ., Japan

16:40
3D3 - 4 **CGH Generation Using the Depth Camera**

*H. Kang, C. Ahn, S. Lee, S. Lee**
ETRI, Korea
**Kwangwoon Univ., Korea*

Author Interviews
17:00 - 18:00

Thursday, December 4

9:30 - 12:00 **Poster/AI Room (Room 203+204)**

Poster 3Dp: 3D Displays & Related Technologies

3Dp - 1 **Three Dimensional Display for User Interface in Free Viewpoint Television System**

T. Higashi, T. Fujii, M. Tanimoto
Nagoya Univ., Japan

3Dp - 2 **Streaming Stereoscopic Video over IP : MPEG-4 Based Architecture**

K. J. Yun, S. H. Cho, C. H. Ahn
ETRI, Korea

3Dp - 3 **A New Method of Designing Double Lenticular Screen for Large Rear Projection 3-D Displays**

C. Yamada, H. Isono
Nippon Inst. of Tech., Japan

3Dp - 4 **Real-Time Measurement of the Position of a Viewer Watching a Stereoscopic LED Display with a Parallax Barrier**

S. Matsumoto, H. Yamamoto, Y. Hayasaki, N. Nishida
Univ. of Tokushima, Japan

3Dp - 5 **Real-Time Display of Stereoscopic Images by Use of an Active Binocular Camera**

Y. Yamada, H. Yamamoto, Y. Hayasaki, S. Muguruma,*
Y. Nagai, Y. Shimizu*, N. Nishida*
Univ. of Tokushima, Japan
**Nichia, Japan*

3Dp - 6 **Integral Photography (IP) Using Variable Focusing Lens Array (VFLA) for Enhanced Integral Image Depth**

Y. S. Hwang, T. H. Yoon, J. C. Kim
Pusan Nat. Univ., Korea

3Dp - 7 **Design and Implementation of Real-time Video Processor for Multi-View 3D Displays**

J. H. Sung, S. S. Kim, J. Y. Park, J. H. Roh, J. S. Kim*
Yonsei Univ., Korea
**Samsung Elect., Korea*

3Dp - 8 **A Real-Time Three Dimensional Animation System by Electro Holography with a Special-Purpose Chip for Holography and a High Minute Reflective LCD**

T. Shimobaba, K. Godo, S. Hishinuma*, M. Horiuchi*,*
T. Ito,***
RIKEN, Japan
**Chiba Univ., Japan*
***Japan Sci. & Tech., Japan*

Supporting Organizations:
Special Technical Group on 3D Image Information, ITE
Technical Group on Artistic Image Technology, ITE

Workshop on Applied Vision and Human Factors

Thursday, December 4

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster VHFp: Image Quality & Processing

VHFp - 1 **Image Inclination Measurement by Evaluating Pairs of Edge Directions**

H. Oomi, F. Saitoh
Gifu Univ., Japan

VHFp - 2 **Adaptive Contrast Improvement Method for Color Image Using Genetic Algorithm**

T. Urata, F. Saitoh
Gifu Univ., Japan

VHFp - 3 **Super-Resolution Color Array Display Based on Pixel Reorganization**

Y. Zhang, B. M. Zhang
Nanjing Univ. of Sci. & Tech., China

VHFp - 4 **Effect of the Background Luminance on Just Noticeable Difference(JND) Contrast of "Mura" in LCDs**

T. Tamura, M. Baba, T. Furuhata
Tokyo Polytech. Univ., Japan

VHFp - 5 **Empirical Evaluation Method of Overall Picture Quality Improved by Weighting Factors on an LCD**

T. Ozawa, Y. Shimodaira, G. Ohashi
Shizuoka Univ., Japan

VHFp - 6 **Improvement of Moving Picture Quality in TFT-LCD with Blinking Backlight Unit and Overdriving**

D. S. Park, J. M. Han, K. W. Bae, S. Y. Kim, Y. H. Kim, Y. J. Lim
BOE Hyundai Display Tech., Korea

Friday, December 5

9:25 - 9:30 **Room 413+414**

Opening

9:25
Opening Remarks
H. Isono, Workshop Chair

9:30 - 10:40 **Room 413+414**

VHF1: Display Measurement & Image Quality (1)

Chair:	H. Isono, Nippon Inst. of Tech., Japan
Co-Chair:	T. Kurita, NHK, Japan

9:30
VHF1 - 1: ***Invited*** **Review of Ergonomic Standards for Displays**

S. Fukuzumi, Y. Nakano, R. Yoshitake***
NEC, Japan
**Oki Elec. Ind., Japan*
***IBM Japan, Japan*

10:00
VHF1 - 2 **Mura Analysis Method by Using JND Luminance and the SEMU Definition**

D.-G. Lee, I.-H. Kim, M. C. Jeong, B. K. Oh, W. Y. Kim
LG.Philips LCD, Korea

10:20
VHF1 - 3 **An Ergonomic Approach to Evaluate Screen Quality on LCDs**

*K. Moriguchi, R. Yoshitake, Y. Mori**
IBM Japan, Japan
**IDTech, Japan*

- - Break - -

11:00 - 12:00 **Room 413+414**

VHF2: Display Measurement & Image Quality (2)

Chair:	J. L. Bergquist, Nokia Japan, Japan
Co-Chair:	T. Kurita, NHK, Japan

11:00
VHF2 - 1 **Relation between Measured Spot Profile and Perceived Sharpness**

J. Xia, Y. X. Liu, I. Heynderickx, H. C. Yin*
Southeast Univ., China
**Philips Res. Labs., The Netherlands*

11:20
VHF2 - 2 **Proposal of Lightness Level and Threshold Conditions of Perceptive Parameter, " Motion Picture Response Time (MPRT) "**

Y. Nakamura, J. Someya, M. Yamakawa, Y. Igarashi,*
*Y. Yamamoto**, Y. Tanaka*,*
*S. Hasegawa***, Y. Nishida****, T. Kurita******
Mitsubishi Elec., Japan
**Hitachi Displays, Japan*
***Hitachi, Japan*
****Sony, Japan*
*****Eizo Nanao, Japan*
******NHK, Japan*

11:40
VHF2 - 3 **Development of Accurate and Reliable System for Motion Picture Quality Analysis**

K. Oka, Y. Enami
Otsuka Elect., Japan

- - Lunch - -

14:00 - 15:30 **Room 413+414**

VHF3: Human Factors

Chair: T. Tamura, Tokyo Polytech. Univ., Japan
Co-Chair: S. Clippingdale, NHK, Japan

14:00
VHF3 - 1: ***Invited*** **Visual Ergonomics Challenges in Information-Intensive Mobile Displays**

J. L. Bergquist
Nokia Res. Ctr., Japan

14:30
VHF3 - 2 **Use of Visual Cryptography to Limit Viewing Zone of Information Display**

H. Yamamoto, Y. Hayasaki, N. Nishida
Univ. of Tokushima, Japan

14:50
VHF3 - 3 **Visual Perception of Light Emitting Diode Light Sources**

R. Sharpe, C. M. Cartwright, N. Mather, W. A. Gillespie
Univ. of Abertay, UK

15:10
VHF3 - 4 **Visual Chromatic Spatial and Temporal Contrast Sensitivity Functions in Elderly People**

H. Isono, K. Kurata, S. Takahashi, C. Yamada*
Nippon Inst. of Tech., Japan
**NHK, Japan*

- - Break - -

15:50 - 17:00 Room 413+414

VHF4: Color & Tone Reproduction

Chair: Y. Shimodaira, Shizuoka Univ., Japan
Co-Chair: S. Clippingdale, NHK, Japan

15:50
VHF4 - 1: ***Invited*** **Wide Color Gamut Displays - New Phosphor CRT and LED Backlighting LCD -**

H. Sugiura, S. Kagawa, H. Kaneko, H. Tanizoe, T. Kimura**
Mitsubishi Elec., Japan
**NEC-Mitsubishi Elec. Visual Syss., Japan*

16:20
VHF4 - 2 **Analysis and Experiments of LC Inversion Driving and Frame Rate Control of Graphic Adapter**

M. Tsuchihashi, R. Kataoka, K. Inoue, M. Kobayashi
IBM Japan, Japan

16:40
VHF4 - 3 **Another Clarification of "Gamma" for Human Visual System**

H. Sasaki, T. Taguchi
Toshiba, Japan

Author Interviews
17:00 - 18:00

Late-News Papers

due October 2, 2003

Submit a two-page
Camera-ready manuscript of
A4- or US letter-sized pages, reflecting
Important new findings or developments to:

IDW ’03 Secretariat

c/o The Convention
Annecy Aoyama, 2F
2-6-12, Minami-Aoyama, Minato-ku
Tokyo 107-0062, Japan
Phone +81-3-3423-4180
Fax +81-3-3423-4108
http://idw.ee.uec.ac.jp/

Workshop on Projection and Large-Area Displays, and Their Components

Wednesday, December 3

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster LADp: Light Valve Technology

LADp - 1 **Light Leakage Effects and Light Shielding Design on 3-in. XGA LTPS Projection Displays**

C.-H. Tsai, C.-C. Chen, C.-Y. Huang, C.-C. Chiang, Y.-H. Yeh, T.-Y. Sheu
ERSO, Taiwan

Thursday, December 4

9:00 - 10:20 **Room 413+414**

LAD1: Imaging & Light Valve Technology

Chair: D. S. Kim, Samsung Elect., Korea
Co-Chair: K. Ohhara, TI Japan, Japan

9:00
LAD1 - 1 **WXGA LCOS Projection Panel with Vertically Aligned Nematic LC**

D. Cuypers, J. Van Den Steen, G. Van Doorselaer, H. De Smet, A. Van Calster**
IMEC, Belgium
**Ghent Univ., Belgium*

9:20
LAD1 - 2 **Driving Circuit Technology of LCOS for HDTV**

T. Maeda, I. Takemoto, K. Shibata, H. Nakagawa
Hitachi Displays, Japan

9:40
LAD1 - 3 **Development of a New Video Image Improvement LSI for the Digital Cinema LCD Projector**

A. Maenaka, R. Amano*, T. Iinuma*,**, H. Murata*, A. Mishima*, H. Kitagishi**
**Sanyo Elec., Japan*
***Nara Inst. of Sci. & Tech.*

10:00
LAD1 - 4 **A Novel Projection System Based on an Adaptive Dynamic Range Control Concept**

H. Iisaka, T. Toyooka, S. Yoshida, M. Nagata
Seiko Epson, Japan

- - Break - -

10:40 - 12:05 **Room 413+414**

LAD2: Optics & Illumination Components

Chair: M. S. Brennesholtz, Philips LCOS Microdisplay Syss., USA
Co-Chair: T. Hayashi, Sumitomo 3M, Japan

10:40
LAD2 - 1: ***Invited*** **Optical Model of DMD Device in DLP Projection System**

S. Dewald, A. Iyengar
Texas Instrs., USA

11:05
LAD2 - 2 **High Efficiency Illuminating System for Projector**

K. Nishida, H. Yanagisawa
Seiko Epson, Japan

11:25
LAD2 - 3 **High Efficiency Reflectors for Light Sources of Projection Systems**

T. Tsutsumi, S. Tamaru, K. Maruyama, T. Ogura
Matsushita Elec. Ind., Japan

11:45
LAD2 - 4 **High Contrast Front Projection Display System Optimizing the Projected Light Angle Range**

B. Katagiri, T. Ishinabe, T. Uchida, T. Miyashita
Tohoku Univ., Japan

- - Lunch - -

13:50 - 15:15 **Room 413+414**

LAD3: Color Sequential Technology

Chair: S. Dewald, Texas Instrs., USA
Co-Chair: Z. Tajima, Hitachi Displays, Japan

13:50
LAD3 - 1: ***Invited*** **Simplified Projection TV Optics Using DMD**

Y. Masumoto, M. Wada, Y. Fushimi
Matsushita Elec. Ind., Japan

14:15
LAD3 - 2 **A High-Resolution LCOS Imager for Single Panel HDTV Systems**

W. Sloof, M. S. Brennesholtz
Philips LCOS Microdisplay Syss., USA

14:35
LAD3 - 3 **Single LCOS Projection System by Using MCSD Technology**

D.-S. Kim, K. H. Cho, S. H. Kim, H.-J. Lee,
*M. S. Brennesholtz**
Samsung Elect., Korea
**Philips LCOS Microdisplay Syss., USA*

14:55
LAD3 - 4 **Performance of High Power LED Illuminators in Color Sequential Projection Displays**

G. Harbers, M. Keuper, S. Paolini
Lumileds Lighting, USA

- - Break - -

15:35 - 17:00 **Room 413+414**

LAD4: Advanced System

Chair: G. Harbers, Lumileds Lighting, USA
Co-Chair: H. Nakano, Barco, Japan

15:35
LAD4 - 1: ***Invited*** **Development of a New HD LCD Projector for Digital Cinema**

H. Yamamoto, K. Terada, M. Tahara
Sanyo, Japan

16:00
LAD4 - 2 **A New Projection System Based on the Light Scrolling Method for Motion Pictures**

Y. Yokote, K. Arai, S. Yoshii, T. Miwa, M. Taoka, T. Iinuma, H. Kanayama, H. Murata, Y. Funazou
Sanyo Elec., Japan

16:20
LAD4 - 3 **Wide Gamut Projection Displays with Complementary Colors**

S. C. Tan, X. W. Sun
Nanyang Tech. Univ., Singapore

16:40
LAD4 - 4 **High-Density Multi-Projection Display System**

T. Koike, Y. Momoi, M. Oikawa, M. Yamasaki, H. Takeda
Hitachi, Japan

Author Interviews
17:00 - 18:00

Supporting Organizations:
Technical Group on Information Display, ITE
Technical Committee on Electronic Information Displays, Electronics Society, IEICE
Opto-electronic Materials and Devices Study Specialty Section, IEIJ
Liquid crystal display forum, JLCS

Topical Session on Electronic Paper

Wednesday, December 3

14:00 - 15:10 **Main Hall**

AMD2/EP1: Active-Matrix Electronic Paper

Chair: M. Omodani, Tokai Univ., Japan
Co-Chair: S. Utsunomiya, Seiko Epson, Japan

14:00
AMD2/EP1 - 1: ***Invited*** **Driving Schemes for Active Matrix Electrophoretic Displays**

G. F. Zhou, M. T. Johnson, R. Cortie, R. Zehner, K. Amundson*, A. Knaian*, B. Zion**
Philips Res. Labs., The Netherlands
**E Ink, USA*

14:25
AMD2/EP1 - 2: ***Invited*** **Microcup® Electrophoretic Displays, Grayscale and Color Rendition**

J. Chung, J. Hou, W. Wang, L.-Y. Chu, W. Yao, R. C. Liang
SiPix Imaging, USA

14:50
AMD2/EP1 - 3 **Printed Active Matrix Arrays for Electronic Paper Displays**

S. E. Burns, C. Kuhn, K. Jacobs, J. D. Mackenzie, C. Ramsdale, J. Watts, M. Etchells, K. Chalmers, P. Devine, N. Murton, S. Norval, J. King, J. Mills, H. Sirringhaus, R. H. Friend
Plastic Logic, UK

Author Interviews
17:00 - 18:00

Thursday, December 4

9:20 - 10:05 **Room 409+410**

EP2: Electronic Paper (1)

Chair: H. Arisawa, Fuji Xerox, Japan
Co-Chair: T. Fujisawa, Dainippon Ink & Chem., Japan

9:20
EP2 - 1: ***Invited*** **Multi-Color Photochromism of TiO_2 Films Loaded with Silver Nanoparticles**

*Y. Ohko, T. Tatsuma**
Japan Sci. & Tech., Japan
**Univ. of Tokyo, Japan*

9:45
EP2 - 2 **Chemical Preparation of Twisting Balls for Electronic Paper**

S. Maeda, S. Hayashi, K. Ichikawa, K. Tanaka*, R. Ishikawa*, M. Omodani**
Oji Paper, Japan
**Tokai Univ., Japan*

- - Break - -

10:40 - 11:40 **Room 409+410**

EP3: Electronic Paper (2)

Chair: S. Maeda, Oji Paper, Japan
Co-Chair: Y. Hotta, Ricoh, Japan

10:40
EP3 - 1 **A New Insight in Electronic Paper: EPID or DEPID?**

T. Bert, H. De Smet*, ***
**Ghent Univ., Belgium*
*** IMEC, Belgium*

11:00
EP3 - 2 **Preparation of Nylon Microcapsules Containing Superparamagnetite**

T. Takada, T. Shoubara, K. Kenmochi, T. Hirai
Shinshu Univ., Japan

11:20
EP3 - 3 **Film-Like Liquid Crystal Display**

Y. A. Sha, L. P. Hsin, C. C. Liao, Y. J. Wong, I. J. Lin, Y. Y. Fan, C.W. Wu, Y. H. Hung, H. C. Chiang, C. R. Sheu, T. Y. Ho, K. H. Liu, C. H. Chan, C. Y. Lin, S. Y. Fuh
ITRI, Taiwan

Author Interviews
17:00 - 18:00

14:00 - 16:30 **Poster/AI Room (Room 203+204)**

Poster EPp: Electronic Paper Posters

EPp - 1 **Multi-Color Electrophoretic Display Technique through Microcapsules**

*C. A. Kim, M. J. Joung, S. Y. Kang, S. D. Ahn, K. S. Suh, C.-H. Kim**
ETRI, Korea
**DPI Solution, Korea*

EPp - 2 **Flow of Liquid Crystal in Mobile Fine Particle Display (MFPD) Cells**

M. Ogawa, T. Takahashi, S. Saito, K. Kobayashi, T. Akahane*, Y. Toko***
Kogakuin Univ., Japan
**Nagaoka Univ. of Tech., Japan*
***Stanley Elec., Japan*

EPp - 3 **Evaluation of the Position where Electric Charges on a Ball Exist in Non-Aqueous Dielectric Liquids in Electrical Twisting Ball Displays**

*R. Ishikawa, M. Omodani, S. Maeda**
Tokai Univ., Japan
**Oji Paper, Japan*

SID ’04

Society for Information Display Symposium, Seminar & Exhibition

May 23 – 28, 2004
Seattle, WA, USA
http://www.sid.org

EVENING GET-TOGETHER WITH WINE

Tuesday, December 2
18:00 – 20:00
at the lobby in front of conference room 501,
Fukuoka International Congress Center

(Sponsored by Merck Ltd., Japan)
See page 6 for details

EXHIBITION

13:00 – 18:00 Wednesday, Dec. 3
10:00 – 18:00 Thursday, Dec. 4
10:00 – 13:30 Friday, Dec. 5

Room 201 + 202

Free admission with your registration name tag

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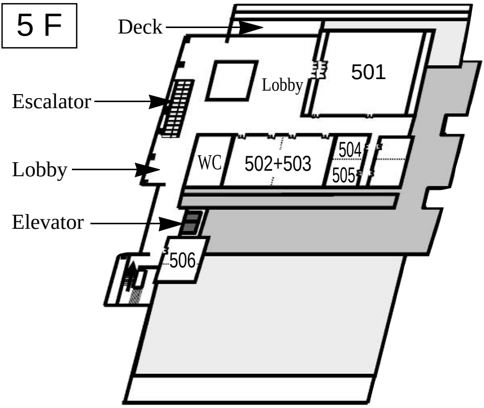
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Lobby
Elevator
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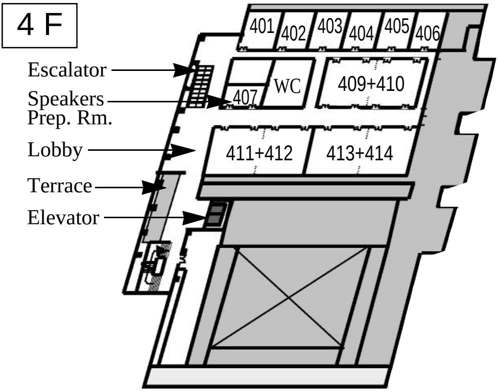
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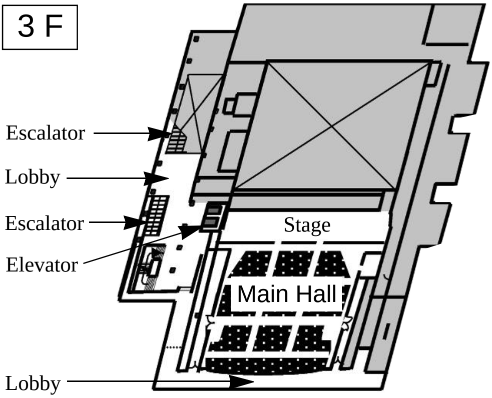

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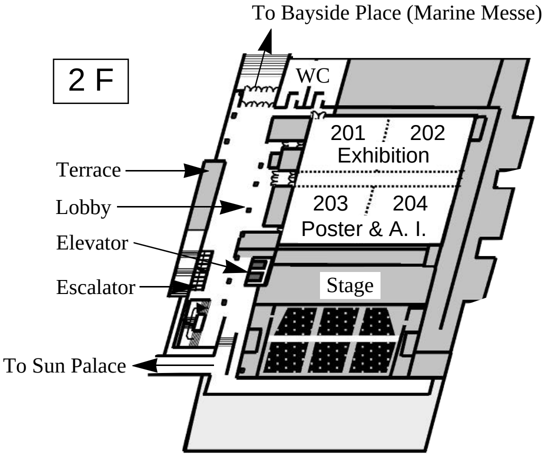

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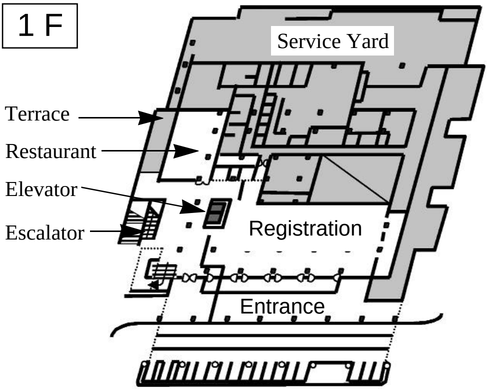

MEMO

IDW ’04

The 11th International Display Workshops

December 8-10, 2004
Niigata, Japan

EVENING GET-TOGETHER WITH WINE

Tuesday, December 2
18:00 – 20:00
at the lobby in front of conference room 501,
Fukuoka International Congress Center

(Sponsored by Merck Ltd., Japan)
See page 6 for details

EXHIBITION

13:00 – 18:00 Wednesday, Dec. 3
10:00 – 18:00 Thursday, Dec. 4
10:00 – 13:30 Friday, Dec. 5

Room 201 + 202

Free admission with your registration name tag

IDW ’03 Secretariat
c/o The Convention
Annecy Aoyama, 2F
2-6-12, Minami-Aoyama, Minato-ku
Tokyo 107-0062, Japan

IDW ’03
ADVANCE PROGRAM