

# PRELIMINARY PROGRAM

## 2009 SID INTERNATIONAL SYMPOSIUM

**June 2–5, 2009 (Tuesday – Friday)**  
**Henry B. Gonzalez Convention Center**  
**San Antonio, Texas, USA**

**Session 1: Annual SID Business Meeting**  
**Tuesday, June 2 / 8:00 – 8:20 am / Ballroom C**

**Session 2: Opening Remarks / Keynote Addresses**  
**Tuesday, June 2 / 8:20 – 10:20 am / Ballroom C**

- 2.1: LCD's Future Opportunities with New Technologies**  
*In-Jae Chung, LG Display Co. Ltd, Seoul, South Korea*
- 2.2: Three-dimensional Displays: Present and Future**  
*Yasuhiro Takaki, Tokyo University of Agriculture and Technology, Koganei, Japan*
- 2.3: 2010: The Plastic Electronics Display Revolution Begins With eReaders**  
*Martin Jackson, Plastic Logic, Cambridge, United Kingdom*

**Session 3: AMOLEDs I (Active-Matrix Devices)**  
**Tuesday, June 2 / 10:50 – 11:50 am / Ballroom C1**  
**Chair: Mike Hack, Universal Display Corp.**  
**Co-Chair: Norbert Fruehauf, University of Stuttgart**

- 3.1: A New AMOLED Pixel Compensating the Combination of n-Type TFT and Normal OLED Devices**  
*Sang-Hoon Jung, LG Display Co., Ltd., Kyunggi-do, Korea*
- 3.2: Digital Drive with White OLEDs**  
*Kazuyoshi Kawabe, Kodak Japan, Ltd., Yokohama, Japan*
- 3.3: Real-Time Brightness Compensation for a-Si:H TFT Backplane AMOLED**  
*Chang-Heon Kang, LG Display Co., Ltd., Kyunggi-do, Korea*

**Session 4: Flexible Display Components (Flexible Displays)**  
**Tuesday, June 2 / 10:50 am – 12:00 am / Ballroom C2**  
**Chair: Aron Vecht, Aron Vecht and Associates**

- Co-Chair: Jutta Rasp, FPExperts**
- 4.1: A Variable Curved Backlight**  
*David Montgomery, Sharp Laboratories of Europe, Oxford, UK*
  - 4.2: Flexible Electronic Skin Display**  
*Erica Montbach, Kent Displays, Inc., Kent, OH, USA*
  - 4.3: Printed Low-Cost Flexible Doped P-OLED Displays**  
*J. Devin Mackenzie, Add Vision, Scotts Valley, CA, USA*
  - 4.4: Late-News Paper: A High Resolution Flexible Electrophoretic Display Driven by OTFTs with Inkjet-Printed Organic Semiconductor**  
*Noriyuki Kawashima, Sony Corp, Atsugi-shi, Japan*

**Session 5: Emerging Applications (Applications)**  
**Tuesday, June 2 / 10:50 am – 12:10 pm / Room 214A/B**  
**Chair: Susan K. Jones, eMagin Corp.**  
**Co-Chair: Andras I. Lakatos**

- 5.1: Invited Paper: Development of e-Paper Color Display Technologies**  
*Alex Henzen, iRex Technologies, Eindhoven, The Netherlands*
- 5.2: Approaches to Virtual Product Development in the LCD Industry**  
*KwangHoon Lee, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 5.3: Simulation of Planar Lightguides in Imaging Applications Using Rigorous Diffraction Theory**  
*Tapani Levola, Nokia Research Center, Tampere, Finland*
- 5.4: Subtitles in Short 3-D Movies**  
*Lachlan Pockett, Nokia, Tampere, Finland*

**Session 6: Field-Emission Displays (Field-Emission Displays)**  
**Tuesday, June 2 / 10:50 – 11:50 am / Room 214C/D**  
**Chair: Masayuki Nakamoto, Shizuoka University**

**Co-Chair:** *Hsing-Yao Chen, Chunghwa Picture Tubes, Ltd.*

- 6.1: **Invited Paper:** Design of Carbon Nanotubes for Field-Emission Applications  
*William Milne, Cambridge University, Cambridge, UK*
- 6.2: **Improvements of Color CNT-FED Character Displays**  
*Hiroyuki Kurachi, Noritake Co. Ltd., Mie, Japan*
- 6.3: **Enhancement of Field Emission on Surface-Conduction Electron Emitters**  
*Hu-Wen Cheng, National Chiao Tung University, Hsinchu, Taiwan*

**Session 7: Plasma-Display Efficacy and Cell Design (Emissive Displays)**

**Tuesday, June 2 / 10:50 am – 12:10 pm / Room 217A/B**

**Chair:** *Yong Seog Kim, Hongik University*

**Co-Chair:** *Ryuichi Murai, Panasonic*

- 7.1: **Invited Paper:** Analysis for Reduction of Power Consumption in PDPs  
*Byung Hak Lee, Samsung SDI Co., Ltd., Chungcheongnam-do, Korea*
- 7.2: **Address Discharge Characteristics of High-Luminous-Efficacy PDP with SrO Protecting Layer**  
*Hae Yoon Jung, Seoul National University, Seoul, Korea*
- 7.3: **High-Luminance Ultra-High-Resolution PDPs with Twin-Path Coplanar Discharge Cells**  
*Yoshikuni Hirano, NHK Science and Technical Research Laboratories, Tokyo, Japan*
- 7.4: **Reduction of Address-Delay-Time Degradation by Half-Pitch-Shifted Priming Cell Structure in ACPDPs**  
*Shunichio Nobuki, Hitachi Ltd., Tokyo, Japan*

**Session 8: Front Projection (Projection)**

**Tuesday, June 2 / 10:50 am – 12:00 pm / Room 217C/D**

**Chair:** *Robert L. Melcher, Melcher International, LLC*

**Co-Chair:** *Alan Sobel, Flatscreen Technologies Corp.*

- 8.1: **LCOS Devices for Professional Projection Displays**  
*Andre Van Calster, Ghent University-IMEC, Zwijnaarde, Belgium*
- 8.2: **Color-Tuning Projection System for Adaptive Combination of High Brightness and Wide Color Gamut**  
*Makoto Maeda, Sanyo Electric Co., Ltd., Osaka, Japan*
- 8.3: **High Contrast in Bright Ambients with Angle-Shifting Front-Projection Screen**  
*Baku Katagiri, New Industry Creation Hatchery Center (NICHe), Miyagi, Japan*
- 8.4: **Late-News Paper: Technology Study for a 4Kx2K High Frame Rate Projector**  
*Tsuneo Hayashi, Sony Corp, Tokyo, Japan*

**Session 9: AMOLEDs II (Active-Matrix Devices)**

**Tuesday, June 2 / 2:00 – 3:00 pm / Ballroom C1**

**Chair:** *Kalluri R. Sarma, Honeywell, Inc.*

**Co-Chair:** *Takatoshi Tsujimura, Kodak Japan, Ltd.*

- 9.1: **40-in. FHD AMOLED Display with IR Drop-Compensation Pixel Circuit**  
*Yang Wan Kim, Samsung Mobile Display, Cheongchungnam-do, Korea*
- 9.2: **Line-Scan Sequential Lateral Solidification Process for AMOLED Application**  
*Jae Beom Choi, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 9.3: **AMOLED Using Inverse-Staggered Poly-Si TFT with a Center-Offset Gated Structure**  
*Jin Jang, Kyung Hee University, Seoul, Korea*

**Session 10: Flexible-Display Manufacturing (Flexible Displays / Manufacturing)**

**Tuesday, June 2 / 2:00 – 3:20 pm / Ballroom C2**

**Chair:** *David C. Morton, Army Research Laboratory*

**Co-Chair:** *Elliott Schlam, Elliott Schlam Associates*

- 10.1: **Invited Paper:** Wearable 4-in. QVGA Full-Color Video Flexible AMOLEDs for Rugged Applications  
*Ruiqing Ma, Universal Display Corp., Ewing, NJ, USA*
- 10.2: **Invited Paper:** Flexible e-Books  
*Ian French, Prime View International, Ltd., Brighton, UK*
- 10.3: **Invited Paper:** Rollable Displays: From Concept to Manufacturing  
*Edzer Huijtema, Polymer Vision Ltd., Eindhoven, The Netherlands*
- 10.4: **Multi-Wavelength Photolithography for Manufacturing Flexible Electronics**  
*George Powch, Versatilis LLC, Shelburne, VT, USA*

**Session 11: 3-D Applications (Applications)**

**Tuesday, June 2 / 2:00 – 3:30 pm / Room 214A/B**

**Chair:** *Adi Aibileah, Planar Systems, Inc.*

**Co-Chair:** *Jyrki Kimmel, Nokia Research Center*

- 11.1: **An Autostereoscopic 3-D Display Using Tunable LC Lens Array that Mimics Effects of a GRIN Lenticular Lens Array**

- Paul C.-P. Chao, National Chiao Tung University, Hsinchu, Taiwan*
- 11.2: **VCMaster3D: A New Fourier-Optics Viewing-Angle Instrument for Characterization of Autostereoscopic 3-D Displays**  
*Pierre Boher, ELDIM S.A., Saint Clair, France*
- 11.3: **3-D Depth-Image-Based Rendering (DIBR) Using Disocclusion Area Restoration**  
*Young Ju Jeong, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 11.4: **A Quality-Scalable Depth-Aware Video-Processing System**  
*Chao-Chung Cheng, National Taiwan University, Taipei, Taiwan*
- 11.5: **Late-News Paper: Full Resolution Autostereoscopic 3D Display for Mobile Applications**  
*John Schultz, 3M, Saint Paul, MN USA*

### **Session 12: Field-Emission Applications (Field-Emission Displays)**

**Tuesday, June 2 / 2:00 – 3:20 pm / Room 214C/D**

**Chair:** *Sashiro Uemura, Noritake Itron Corp.*

**Co-Chair:** *Myung Hwan Oh, Dankook University*

- 12.1: **Invited Paper: Enhanced Electron Emission of Carbon-Nanotube Emitters with Post-Growth Treatment**  
*Kyu Chang Park, Kyung Hee University, Seoul, Korea*
- 12.2: **Enhanced Electron Emission of the Cone-Type Emitters with Carbon Nanostructures**  
*Kyu Chang Park, Kyung Hee University, Seoul, Korea*
- 12.3: **A 1-sec Implementation of CNT-Emitter Arrays on Glasses for BLUs**  
*Suguru Noda, University of Tokyo, Tokyo, Japan*
- 12.4: **A 7-in. Field-Emission Backlight-Unit Assembly Using TiO<sub>2</sub>-Coated Spacer for LCD Panels**  
*Jian-Min Jeng, Tatung University, Taipei, Taiwan*

### **Session 13: Plasma-Display Driving (Emissive Displays)**

**Tuesday, June 2 / 2:00 – 3:20 pm / Room 217A/B**

**Chair:** *Larry F. Weber, Consultant*

**Co-Chair:** *Tomokazu Shiga, The University of Electro-Communications*

- 13.1: **New Single Sustain System with High Voltage Address Driver (Hi-AD) for Low Power Consumption and Low Cost PDPs**  
*Mutsuhiro Mori, Hitachi Research Laboratory, Ibaraki, Japan*
- 13.2: **Driving Waveforms for New Single Sustain System with High-Voltage Address Driver (Hi-AD)**  
*Makoto Onozawa, Hitachi Plasma Display, Ltd., Yokohama, Japan*
- 13.3: **Using New Driving Method to Reduce Data IC Heat with Single Scan Mode in a 50-in. Full-HD PDP**  
*DaeHun Kim, LG Electronics Co., Seoul, Korea*
- 13.4: **Three-Dimensional Observations of Reset and Address Discharges of PDPs**  
*Tae-Seung Cho, Samsung SDI Co., Ltd., Cheongchungnam-do, Korea*

### **Session 14: Pico Projectors (Projection)**

**Tuesday, June 2 / 2:00 – 3:20 pm / Room 217C/D**

**Chair:** *Mark Handschy, Displaytech, Inc.*

**Co-Chair:** *Frederic J. Kahn, Kahn International, A California Corporation*

- 14.1: **Power Considerations of Color-Filter-LCOS Embedded-Pico-Projector Electronic Architectures for Mobile Phones**  
*H. C. Huang, Himax Displays, Ltd., Tainan, Taiwan*
- 14.2: **Waveguide-Based Pico-Projector with Only One Lens for Cell-Phone Applications**  
*Kenneth Li, Wavien, Inc., Valencia, CA, USA*
- 14.3: **White-Point Calibration of Color-Sequential Mobile Projector**  
*Yongchan Keh, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 14.4: **Novel Human-Machine-Interface (HMI) Design Enabled by Holographic Laser Projection**  
*Edward Buckley, Light Blue Optics, Ltd., Colorado Springs, CO, USA*
- 14.5: **Late-News Paper: A High Efficiency Mobile Projection Engine Utilizing Color Sequential Illumination**  
*Zhisheng Yun, 3M Precision Optics, Cincinnati, OH USA*

### **Session 15: Oxide TFTs I (Active-Matrix Devices)**

**Tuesday, June 2 / 3:40 – 5:00 pm / Ballroom C1**

**Chair:** *Hyun Jae Kim, Yonsei University*

**Co-Chair:** *Man Wong, Hong Kong University of Science & Technology*

- 15.1: **Invited Paper: Amorphous Oxide Semiconductor TFTs: Performance and Manufacturability for Display Applications**  
*John Wager, Oregon State University, Corvallis, OR, USA*
- 15.2: **Development of Driver-Integrated Panel Using Amorphous In-Ga-Zn-Oxide TFT**  
*Takeshi Osada, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan*
- 15.3: **AMOLED Driven by Solution-Processed Oxide Semiconductor TFT**  
*Myung Kwan Ryu, Samsung Advanced Institute of Technology, Kyunggi-do, Korea*
- 15.4: **Excellent Performance of Indium-Oxide-Based TFTs by dc Sputtering**  
*Ming-Hsien Lee, AU Optronics Corp., Hsinchu, Taiwan*

### **Session 16: Flexible Active-Matrix Backplanes (Flexible Displays)**

**Tuesday, June 2 / 3:40 – 5:00 pm / Ballroom C2**

**Chair:** *Jurgen Daniel, Palo Alto Research Center, Inc.*

**Co-Chair:** *Mark Hartney, FlexTech*

- 16.1: **Invited Paper:** Development of TFT Process and Circuit Integration on Flexible Substrate to Enhance Flexibility of the Display  
*Chang Dong Kim, LG Display Co., Ltd., Kyunggi-do, Korea*
- 16.2: **Invited Paper:** Flexible/Stretchable Electronics for Unusual Display Systems  
*John Rogers, University of Illinois at Urbana/Champaign, Urbana, IL, USA*
- 16.3: **Polymer-Network LCD Driven by Printed OTFTs on a Plastic Substrate**  
*Kiyoshi Yase, PRI, AIST, Ibaraki, Japan*
- 16.4: **Ultra-Thin Chip Packaging (UTCP): A Promising Technology for Future Flexible-Display Interconnection**  
*Jonathan Govaerts, IMEC—University of Gent, Zwijnaarde, Belgium*

**Session 17: Understanding Visual Display Artifacts (Display Measurement)**

**Tuesday, June 2 / 3:40 – 5:10 pm / Room 214A/B**

**Chair:** *Thomas G. Fiske, Rockwell Collins Display Systems*

**Co-Chair:** *Frank F. Rochow, LMT Lichtmesstechnik GmbH*

- 17.1: **Comparison of Motion-Blur-Measurement Methods**  
*Andrew Watson, NASA Ames Research Center, Moffett Field, CA, USA*
- 17.2: **Advanced Display Motion-Induced Color-Distortion Analysis Methods**  
*Jongseo Lee, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 17.3: **Visual Calibration of Display for Accurate Contrast Reproduction**  
*Long To, Harvard Medical School, Boston, MA, USA*
- 17.4: **Comprehensive Survey on Viewing-Angle-Measurement Devices: A Theoretical Study**  
*Pierre Boher, ELDIM S.A., Saint Clair, France*
- 17.5: **Late-News Paper: Projector Flux from Color Primaries**  
*Edward Kelley, NIST, Boulder, CO USA*

**Session 18: Field-Sequential Color (Display Systems)**

**Friday, June 5 / 9:00 – 10:30 am / Room 214C/D**

**Chair:** *Jean-Pierre Guillou, Sony Electronics*

**Co-Chair:** *Han-Ping D. Shieh, Display Institute, National Chiao Tung University*

- 18.1: **Invited Paper: Eco-Display High-Optical-Throughput Color-Filterless Field-Sequential LCDs**  
*Han-Ping Shieh, Display Institute, National Chiao Tung University, Hsinchu, Taiwan*
- 18.2: **An EOG-Assisted Contingent Display for Suppressing Saccadic Color Breakup**  
*Wei Chung Cheng, National Chiao Tung University, Hsinchu, Taiwan*
- 18.3: **Color-Break-Up Reduction by 180-Hz Stencil-FSC Method in Large-Sized Color Filter-Less LCDs**  
*Fang Cheng Lin, National Chiao Tung University, Hsinchu, Taiwan*
- 18.4: **Two-Color Field-Sequential Method for Color-Filter-Free MVA-LCDs**  
*Yi Ru Cheng, National Chiao Tung University, Hsinchu, Taiwan*
- 18.5: **Late-News Paper: Liquid Crystal Privacy-Enhanced Displays for Mobile PCs**  
*Junichiro Ishii, NEC Corp., Sagami-hara, Japan*

**Session 19: Phosphors (Emissive Displays)**

**Tuesday, June 2 / 3:40 – 5:00 pm / Room 217A/B**

**Chair:** *Ravi Rao, SRI International*

**Co-Chair:** *Gerrit Oversluizen, Philips Research Laboratories*

- 19.1: **Design of 3-D PDP with Fast-Decaying Phosphor**  
*Young Kwan Kim, Samsung SDI Co., Ltd., Cheongchungnam-do, Korea*
- 19.2: **Investigating the Function of Gd<sup>3+</sup> in (Y,Gd)BO<sub>3</sub>:Eu<sup>3+</sup> through Measurements of Host-to-Activator Transfer Efficiency**  
*Anthony Diaz, Central Washington University, Ellensburg, WA, USA*
- 19.3: **Electronic-Structure Calculation and QSPR Analysis of Eu<sup>2+</sup>-Doped Oxide Phosphors: Relationship between Emission Wavelength and Crystal Structure**  
*Hiroaki Onuma, Tohoku University, Sendai, Japan*
- 19.4: **Luminescence Characteristics of YAl<sub>3</sub>B<sub>4</sub>O<sub>12</sub>:Tb<sup>3+</sup> Phosphor for PDP Application**  
*Ji Hyun Kim, Samsung SDI Co., Ltd., Kyunggi-do, Korea*

**Session 20: Solid-State Projection Light Sources (Projection)**

**Tuesday, June 2 / 3:40 – 5:00 pm / Room 217C/D**

**Chair:** *Ming Hsien Wu, Hamamatsu Corp.*

**Co-Chair:** *Matthew S. Brennessoltz, Insight Media*

- 20.1: **Perceived Brightness of LED Projector**  
*Tsung-Hsun Yang, National Central University, Chung Li, Taiwan*
- 20.2: **High-Efficiency Green-Laser Source for Compact Projectors**  
*John Khaydarov, Spectralus, Santa Clara, CA, USA*

- 20.3: **A Bright and Efficient Mobile Projector Using a Compact Green Laser**  
*Tetsuro Mizushima, Panasonic Corp., Ltd., Osaka, Japan*
- 20.4: **Compact RGB Laser Module for Embedded Laser Projection**  
*Jan Drumm, OSRAM GmbH, Regensburg, Germany*

**Session 21: Oxide TFTs II (Active-Matrix Devices)**

**Wednesday, June 3 / 9:00 – 10:20 am / Ballroom C1**

**Chair:** *Takatoshi Tsujimura, Kodak Japan, Ltd.*

**Co-Chair:** *Man Wong, Hong Kong University of Science & Technology*

- 21.1: **Invited Paper: Effect of Channel-Interface-Formation Process on Oxide TFT Performance**  
*Sang-Hee Park, ETRI, Daejeon, Korea*
- 21.2: **Al and Sn-Doped Zinc Indium Oxide TFTs for AMOLED Backplanes**  
*Doo-Hee Cho, ETRI, Daejeon, Korea*
- 21.3: **4.0-in. QVGA AMOLED Display Using In-Ga-Zn-Oxide TFTs with a Novel Passivation Layer**  
*Hiroki Ohara, Semiconductor Energy Laboratory, Kanagawa, Japan*
- 21.4: **Zinc Indium Oxide TFTs for Active-Matrix-Display Backplane**  
*Randy Hoffman, Hewlett-Packard Co., Corvallis, OR, USA*

**Session 22: Cholesteric LCDs (Liquid-Crystal Technology)**

**Wednesday, June 3 / 9:00 – 10:10 am / Ballroom C2**

**Chair:** *Xiao-Yang Huang, Ebulent Technologies Corp.*

**Co-Chair:** *Kei-Hsiung Yang, National Chiao Tung University*

- 22.1: **Novel Black/White Flexible ChLC Display**  
*An-Cheng Chen, ITRI, Hsinchu, Taiwan*
- 22.2: **Frequency Response of Cholesteric LCDs and Its Application in the Driving System**  
*Da-Wei Lee, ITRI, Hsinchu, Taiwan*
- 22.3: **High-Performance Full-Color Cholesteric LCD with Dual-Stacking Structure**  
*Kuan-Ting Chen, ITRI, Hsinchu, Taiwan*
- 22.4: **Late-News Paper: Under 0.05% Reflectance Optical Devices using Improved Motheye Anti-reflection Structure**  
*Kazuya Hayashibe, Sony Corp, Tokyo, Japan*

**Session 23: OLED Devices I (OLEDs)**

**Wednesday, June 3 / 9:00 – 10:20 am / Ballroom C3**

**Chair:** *Eric W. Forsythe, Army Research Laboratory*

**Co-Chair:** *Shunichi Seki, Seiko-Epson Corp.*

- 23.1: **Invited Paper: Luminescence Quenching by Charge Carriers in Organic LEDs**  
*Lewis Rothberg, University of Rochester, Rochester, NY, USA*
- 23.2: **New Green and Red Phosphorescent Host Materials for Highly-Efficient and Long-lifetime OLEDs**  
*Hitoshi Kuma, Idemitsu Kosan Co., Ltd., Chiba, Japan*
- 23.3: **High-Efficiency Green Phosphorescent OLEDs**  
*Mike Weaver, Universal Display Corp., Ewing, NJ, USA*
- 23.4: **Invited Paper: Ideal Host-Dopant System for Highly Efficient Phosphorescent OLEDs**  
*Jang Hyuk Kwon, Kyung Hee University, Seoul, Korea*

**Session 24: Display Measurement Methods and Standards (Display Measurement)**

**Wednesday, June 3 / 9:00 – 10:20 am / Room 214A/B**

**Chair:** *Stephen P. Atwood, Azonix Corp.*

**Co-Chair:** *Michael E. Becker, Display-Metrology & Systems*

- 24.1: **Character Contrast under Uniform Ambient Conditions**  
*Edward Kelley, NIST, Boulder, CO, USA*
- 24.2: **Robustness of Display Reflectance Measurements: Comparison between BRDF and Diffuse Hemispherical Reflectance**  
*Seungkwan Kim, KRISS, Daejeon, Korea*
- 24.3: **Evaluation of LCD-Backlight Local-Dimming System**  
*Hanfeng Chen, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 24.4: **Introduction to the ICDM Display Measurement Standard**  
*Joe Miseli, Sun Microsystems, Inc., Menlo Park, CA, USA*

**Session 25: Autostereoscopic Displays (Display Systems)**

**Wednesday, June 3 / 9:00 – 10:10 am / Room 214C/D**

**Chair:** *Jean-Noel Perbet, THALES Avionics*

**Co-Chair:** *Jae-Hyeung Park, Chungbuk National University*

- 25.1: **Invited Paper:** High-Resolution Autostereoscopic 3-D Display with Scanning Multi-Electrode-Driving Liquid Crystal (MeD-LC) Lens  
Yi Pai Huang, National Chiao Tung University, Hsinchu, Taiwan
- 25.2: **Analysis and Improvement of Viewing Conditions for Two-View and Multi-View Displays**  
Goro Hamagishi, Seiko-Epson Corp., Osaka, Japan
- 25.3: **Autostereoscopic TFT-LCD with LC Parallax Barrier on Wire-Grid Polarizer**  
Jin Jang, Kyung Hee University, Seoul, Korea
- 25.4: **Late-News Paper:** A Novel Polarizer Glasses-type 3D Displays with Active Retarder  
Sung-Min Jung, LG Display Co. Ltd, Paju-si, Korea

### Session 26: Plasma-Display Protective Layer (*Emissive Displays*)

Wednesday, June 3 / 9:00 – 10:20 / Room 217A/B

Chair: Hiroshi Kajiyama, Hiroshima University

Co-Chair: Harm Tolner, Tolner Technology

- 26.1: **Invited Paper:** Control of Temperature Dependency of Exo-Electron Emission Behavior for MgO Film of ACPDPs  
Yong Seog Kim, Hongik University, Seoul, Korea
- 26.2: **Preferred Orientation Formation of MgO Layer During Ion-Beam-Assisted Deposition Process**  
Hak Ki Yu, Pohang University of Science and Technology, Kyunggi-do, Korea
- 26.3: **Effect of Seed Particles on Exaggerated Grain Growth of Redeposited MgO Layer During Accelerated Discharge Testing of ACPDPs**  
Sang-Koo Kwon, LG Electronics Advanced Research Institute, Seoul, Korea
- 26.4: **Enhancement of Discharge Characteristics Using RF-Plasma Treatment on MgO Layer in 50-in. Full-HD ACPDPs**  
Choon-Sang Park, Kyungpook National University, Daegu, Korea

### Session 27: Driver-IC Technologies (*Display Electronics*)

Wednesday, June 3 / 9:00 – 10:20 / Room 217C/D

Chair: Oh-Kyong Kwon, Hanyang University

Co-Chair: Hyongsik Nam, Samsung Electronics Co., Ltd.

- 27.1: **Area-Effective Source Driver with 12-bit Linear DAC for Large-Sized LCDs**  
Oh-Kyong Kwon, Hanyang University, Seoul, Korea
- 27.2: **A Buffer Amplifier with Embodied 4-bit Interpolation for 10-bit AMLCD Column Drivers**  
Byunghun Lee, Korea Advanced Institute of Science and Technology, Daejeon, Korea
- 27.3: **A Decoupling Driving Scheme for Low-Voltage Stress in Driving a Large-Area High-Resolution Electrowetting Display**  
Chao Chiun Liang, ITRI, Hsinchu, Taiwan
- 27.4: **A 10-bit Serial Integration-Type DAC Architecture for AMLCD Column Drivers**  
Ki Duk Kim, KAIST, Daejeon, Korea

### Session 28: System-on-Glass AMLCDs (*Active-Matrix Devices*)

Wednesday, June 3 / 10:40 – 11:40 / Ballroom C1

Chair: Norbert Fruehauf, University of Stuttgart

Co-Chair: Makoto Ohkura, Hitachi Displays, Ltd.

- 28.1: **A Novel Low-Power-Consumption All-Digital System-on-Glass Display with Serial Interface**  
Kenji Harada, Toshiba Matsushita Display Technology Co., Ltd., Ishikawa, Japan
- 28.2: **3.5-in. VGA TFT-LCD with System-on-Glass Technology for Automotive Applications**  
Hirono Nakatogawa, Toshiba Matsushita Display Technology Co., Ltd., Ishikawa, Japan
- 28.3: **Pixel Parasitic Capacitance Modification with Embedded Gate Driver on Panel for a-Si High-Resolution Technology Scheme**  
Jen-Chien Peng, InnoLux Display Corp., Miao-Li, Taiwan

### Session 29: Mobile Displays (*Liquid-Crystal Technology*)

Wednesday, June 3 / 10:40 am – 12:00 pm / Ballroom C2

Chair: Shui-Chih Alan Lien, AU Optronics Corp.

Co-Chair: Gang Xu, Qualcomm MEMS Technologies

- 29.1: **Polarizer-Free Reflective LCD Combined with Ultra-Low-Power Driving Technology**  
Yasushi Asaoka, Sharp Corp., Nara, Japan
- 29.2: **Switchable Single-Cell-Gap Transflective LCD for Mobile Displays**  
Zhibing Ge, University of Central Florida, Orlando, FL, USA
- 29.3: **Novel Wide-View Circular Polarizers Using Negative and Positive AC Plates**  
Akira Sakai, Sharp Corp., Nara, Japan
- 29.4: **Dual-Domain Transflective LCD Using TN and LTN Modes by Photoalignment Technology**  
Tao Du, Hong Kong University of Science and Technology, Kowloon, Hong Kong

### Session 30: OLED Devices II (*OLEDs*)

Wednesday, June 3 / 10:40 am – 12:00 pm / Ballroom C3

Chair: Yasunori Kijima, Sony Corp.

**Co-Chair:** *Mike Weaver, Universal Display Corp.*

- 30.1: **Invited Paper:** **Charge Balance in Phosphorescent OLEDs**  
*Franky So, University of Florida, Gainesville, FL, USA*
- 30.2: **Charge Carriers and Charge-Transfer Reactions in OLED Devices Studied by Electron Paramagnetic Resonance**  
*Thomas Pawlik, Eastman Kodak Co., Rochester, NY, USA*
- 30.3: **White Fluorescent PIN OLED with High Efficiency and Lifetime for Display Applications**  
*Sven Murano, Novaled AG, Dresden, Germany*
- 30.4: **High-Efficiency Fluorescent Red- and Yellow-Emitting OLED Devices**  
*Jeffrey Spindler, Eastman Kodak Co., Rochester, NY, USA*

**Session ICDM: Focus on the ICDM (Display Measurement)**

**Wednesday, June 3 / 10:40 am – 12:00 pm / Room 214A/B**

**Chair:** *Paul Boynton, NIST*

**Co-Chair:** *Stephen P. Atwood, Azonix Corp.*

- ICDM.1: **Gamma and Grayscale Measuring Methods for ICDM Standard**  
*Don Gyou Lee, LG Display Co., Ltd., Kyungbuk-do, Korea*
- ICDM.2: **3D-Stereo Display Standards**  
*Adi Abileah, Planar Systems, Inc., Beaverton, OR, USA*
- ICDM.3: **Projection and Projection Screen Measurements**  
*Michael Rudd, THX Ltd., San Rafael, CA, USA*
- ICDM.4: **Low Luminance and Contrast**  
*Jens Jorgen Jensen, Delta, Hoersholm, Denmark*
- ICDM.5: **Viewing Angle and Measurement Methods**  
*Thierry Leroux, ELDIM S.A., Saint Clair, France*
- **30-minute Discussion Forum**

**Session 31: Advanced TV and 3-D (Display Systems)**

**Wednesday, June 3 / 10:40 am – 12:00 pm / Room 214C/D**

**Chair:** *Brian H. Berkeley, Samsung Electronics Co., Ltd.*

**Co-Chair:** *Jean-Noel Perbet, THALES Avionics*

- 31.1: **Invited Paper:** **World's First 240-Hz TFT-LCD for Full-HD LCD-TV and Its Application to 3-D Displays**  
*Sang Soo Kim, Samsung Electronics Co., Ltd., Cheongchungnam-do, Korea*
- 31.2: **Crosstalk-Free 3-D Display with Time-Sequential OCB-LCD**  
*Daiichi Suzuki, Toshiba Matsushita Display Technology, Ishikawa, Japan*
- 31.3: **Reduction and Measurement of 3-D Moiré Caused by Lenticular Sheet and Backlight**  
*Shin-ichi Uehara, NEC LCD Technologies, Kanagawa, Japan*
- 31.4: **Direct-View and Projection Switchable Mobile Displays**  
*Hsin Hsuan Huang, National Tsing Hua University, Hsinchu, Taiwan*

**Session 32: Touch-Panel Electronics (Display Electronics)**

**Wednesday, June 3 / 10:40 am – 12:10 pm / Room 217C/D**

**Chair:** *Tae Sung Kim, Apple, Inc.*

**Co-Chair:** *Seung-Woo Lee, Kyung Hee University*

- 32.1: **Invited Paper:** **Hybrid Embedded Touch-Screen LCD Panel Based on a-Si:H TFT Process**  
*Bong-Hyun You, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 32.2: **Touch-Panel Controller Implemented with LTPS TFTs**  
*KeeChan Park, Konkuk University, Seoul, Korea*
- 32.3: **Simple Single-Layer Multi-Touch Projected Capacitive Touch Panel**  
*Tsz-Kin Ho, Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- 32.4: **Low-Cost Mutual Capacitance Measuring Circuits and Methods**  
*Gordon Taylor, 3M Touch Systems, Methuen, MA, USA*
- 32.5: **Late-News Paper:** **Multitouch Pixelated Force Sensing Touch Screen**  
*Hao Li, Motorola, Inc, Tempe, AZ USA*

**Session 33: Novel Active-Matrix Devices (Active-Matrix Devices)**

**Wednesday, June 3 / 3:30 – 4:50 pm / Ballroom C1**

**Chair:** *Roger G. Stewart, Sourland Mountain Associates*

**Co-Chair:** *Feng-Yuan Gan, AU Optonics Corp.*

- 33.1: **Implementation of Mobile High-Resolution TFT-LCDs with Color-Sequential Driving Scheme**  
*Ying-Chung Su, Chunghwa Pictures Tubes, Ltd., Taoyuan, Taiwan*
- 33.2: **A Novel Driving Method for Cost Competitive a-Si TFT-LCDs**  
*Su-Hwan Moon, LG Display Co., Ltd., Kyunggi-do, Korea*
- 33.3: **A 14.1-in. WXGA+ LCD Panel Using Hybrid Silicon TFTs**  
*Sung Haeng Cho, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*

- 33.4: **A Novel LTPS Application: A Multiplexed Thermal Array for DNA Amplification**  
*David Fish, Philips Research Laboratories, Surrey, UK*

**Session 34: Novel Display Technologies (Liquid-Crystal Technology)**

**Wednesday, June 3 / 3:30 – 4:40 pm / Ballroom C2**

**Chair:** *Allan R. Kmetz, Consultant*

**Co-Chair:** *Anthony C. Lowe, Lambent Consultancy*

- 34.1: **Recent Improvements towards Applications for Electrowetting Droplet-Driven Displays (D<sup>3</sup>)**  
*Karlheinz Blankenbach, University of Pforzheim, Pforzheim, Germany*
- 34.2: **Transmissive Electrowetting-Based Displays for Portable Multi-Media Devices**  
*Andrea Giraldo, Liquavista BV, Eindhoven, The Netherlands*
- 34.3: **Novel Development of Multi-Color Electrowetting Displays**  
*Wei-Yuan Cheng, ITRI, Hsinchu, Taiwan*
- 34.4: **Late-News Paper: Polarization Independent Projection Systems using Thin Film Polymer Polarization Gratings and Standard Liquid Crystal Microdisplays**  
*Ravi Komanduri, North Carolina State University, Raleigh, NC USA*

**Session 35: OLED Devices III (OLEDs)**

**Wednesday, June 3 / 3:30 – 4:50 pm / Ballroom C3**

**Chair:** *Denis Y. Kondakov, Eastman Kodak Co.*

**Co-Chair:** *Eliav Haskal, Philips Research Laboratories*

- 35.1: **Invited Paper: Novel p- and n- Dopants for Low-Driving-Voltage OLEDs**  
*Jang Joo Kim, Seoul National University, Seoul, Korea*
- 35.2: **Improved Efficiency and Lifetime by Tailoring the Charge-Carrier Supply in OLEDs**  
*Jan Birnstock, Novalde AG, Dresden, Germany*
- 35.3: **High-Performance Tandem White OLEDs Using Li-Free P-N Connector**  
*Tukaram Hatwar, Eastman Kodak Co., Rochester, NY, USA*
- 35.4: **Stable and Efficient OLEDs Based on Single Host p- and n-Doped Layers**  
*Meng Huan Ho, National Chiao Tung University, Hsinchu, Taiwan*

**Session 36: Characterization of Display Systems and Components (Display Measurement)**

**Wednesday, June 3 / 3:30 – 4:50 pm / Room 214A/B**

**Chair:** *Michael R. Klein, Photo Research, Inc.*

**Co-Chair:** *Cornelis Teunissen, Philips Consumer Electronics*

- 36.1: **Advances in Near-to-Eye-Display Optical Characterization**  
*Toni Järvenpää, Nokia Corp., Tampere, Finland*
- 36.2: **Quantifying Sparkle of Anti-Glare Surfaces**  
*Darren Huckaby, EuropTec, Clarksburg, WV, USA*
- 36.3: **Analysis of Depolarized Light Scattering in LCD Panel and Proposal of LCD Systems for Enhancing Contrast Ratio**  
*Hiroyuki Takemoto, Nitto Denko Corp., Hiroshima, Japan*
- 36.4: **Modeling Diffusing Components by Bidirectional Scatter Distribution Function for LCD Applications**  
*Chien Hsiang Hung, National Chiao Tung University, Hsinchu, Taiwan*

**Session 37: Novel Displays (Display Systems)**

**Wednesday, June 3 / 3:30 – 5:10 pm / Room 214C/D**

**Chair:** *Han-Ping D. Shieh, Display Institute, National Chiao Tung University*

**Co-Chair:** *Jean-Pierre Guillou, Sony Electronics*

- 37.1: **Invited Paper: 1-mm-Diameter Full-Color Scanning Fiber Pico Projector**  
*Brian Schowengerdt, University of Washington, Seattle, WA, USA*
- 37.2: **Fiber-Coupled Emissive Micro LED Arrays**  
*Ling Zhu, Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- 37.3: **Smart Transflective Display Integrated with PDLC and OPV-Embedded OLED**  
*Jiun-Haw Lee, National Taiwan University, Taipei, Taiwan*
- 37.4: **High Image Quality of Ultra-Low-Power Digital Micro-Shutter-Based Display Technology**  
*Jignesh Gandhi, Pixtronix, Inc., Andover, MA, USA*
- 37.5: **Invited Paper: Circular-Polarized LCD TV and Its Advantage over Visual Fatigue**  
*Xiaolin Yan, TCL Multimedia Electronics, Shenzhen, China*

**Session 38: Touch-Screen Active-Matrix Displays (Active-Matrix Devices)**

**Thursday, June 4 / 9:00 – 10:20 am / Ballroom C1**

**Chair:** *John Zhong, Apple, Inc.*

**Co-Chair:** *Willem Den Boer, Guardian Industries*

- 38.1: **Embedded Liquid-Crystal Capacitive-Touch-Screen Technology for Large-Sized LCD Applications**  
*Seiki Takahashi, Samsung Electronics Co., Ltd., Cheongchungnam-do, Korea*

- 38.2: **Novel Design for Internal Touch Display**  
*Sheng-Zeng Peng, Chunghwa Picture Tubes, Ltd., Taoyuan, Taiwan*
- 38.3: **Top-COM-Based PLS Mode for Embedded Touch-Screen Applications**  
*Sang Youn Han, Samsung Electronics Co., Ltd, Cheongchungnam-do, Korea*
- 38.4: **A Touch-Sensitive LCD with Embedded Capacitance Detector Arrays**  
*Hyun-Sang Park, Seoul National University, Seoul, Korea*

**Session 39: Fast Response I (Liquid-Crystal Technology)**

**Thursday, June 4 / 9:00 – 10:10 am / Ballroom C2**

**Chair:** *Hoi-Sing Kwok, Hong Kong University of Science & Technology*

**Co-Chair:** *Birendra Bahadur, Rockwell Collins Displays*

- 39.1: **Invited Paper: Optically Isotropic Nano-Structured Liquid-Crystal Composites for Display Applications**  
*Hirotsugu Kikuchi, Kyushu University, Kasuga, Japan*
- 39.2: **Fast-Switching Flexoelectric Display Device with High Contrast**  
*Flynn Castles, University of Cambridge, Cambridge, UK*
- 39.3: **Sub-Millisecond Liquid-Crystal Mode Utilizing Electro-Optic Kerr Effect Comprising Polymer-Stabilized Isotropic Liquid Crystals**  
*Young-Cheol Yang, Kent State University, Kent, OH, USA*
- 39.4: **Late-News Paper: Negative A-Plates using Stretched Polystyrene**  
*Meizi Jiao, University Of Central Florida, Orlando, FL USA*

**Session 40: OLED Manufacturing (OLEDs / Display Manufacturing)**

**Thursday, June 4 / 9:00 – 10:20 am / Ballroom C3**

**Chair:** *Martin B. Wolk, 3M*

**Co-Chair:** *Fan-Chen Luo, AU Optronics Corp.*

- 40.1: **Invited Paper: Current Status of Printing OLEDs**  
*Shunichi Seki, Seiko-Epson Corp., Nagano, Japan*
- 40.2: **Super-High-Resolution Transfer Printing for Full-Color OLED Display Patterning**  
*Hongzheng Jin, Princeton University, Princeton, NJ, USA*
- 40.3: **Solution-Processed OLED Displays: Advances in Performance, Resolution, Lifetime, and Appearance**  
*Marie O'Regan, Dupont Displays, Inc., Santa Barbara, CA, USA*
- 40.4: **Glass Substrates for OLED Lighting with High Out-Coupling Efficiency**  
*Nobuhiro Nakamura, Asahi Glass Co., Ltd., Yokohama, Japan*

**Session 41: Stereoscopic Projection (Display Systems /Projection)**

**Thursday, June 4 / 9:00 – 10:20 am / Room 214C/D**

**Chair:** *Brian T. Schowengerdt, University of Washington*

**Co-Chair:** *Matthew S. Brennesholtz, Insight Media*

- 41.1: **Viewing-Direction-Controllable Three-Dimensional Display Based on Integral Imaging**  
*Jae-Hyeung Park, Chungbuk National University, Chungbuk-do, Korea*
- 41.2: **Autostereoscopic Display Based on Enhanced Integral Photography Using Overlaid Multiple Projectors**  
*Hideyuki Sakai, Hitachi, Ltd., Kanagawa, Japan*
- 41.3: **Zero-Barrier Zero-Crosstalk Autostereoscopic 3-D Display System for Cinema and Home-Theater Multi-User Settings**  
*Wallen Mphopo, National Chiao Tung University, Hsinchu, Taiwan*
- 41.4: **An Autostereoscopic 3-D Projector Based on Two Parallax Barriers**  
*Qiong-Hua Wang, Sichuan University, Sichuan, China*

**Session 42: Display Manufacturing: Processes (Display Manufacturing)**

**Thursday, June 4 / 9:00 – 10:20 am / Room 217A/B**

**Chair:** *Ion Bitu, Qualcomm MEMS Technologies*

**Co-Chair:** *Jun Hyung Souk, Samsung Electronics Co., Ltd.*

- 42.1: **Invited Paper: Processing Flexible Displays**  
*Jun Hyung Souk, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 42.2: **Invited Paper: End-to-End Factory Solutions from Design to Completion: Display-Manufacturing Facilities from Greenfield to Green Manufacturing**  
*Don Carkner, CH2M HILL, Portland, OR, USA*
- 42.3: **Investigation of Interaction between Rubbing Cloth and Pattern Structure on IPS-LCDs**  
*Kyung-mo Son, LG Display Co., Ltd., Kyunggi-do, Korea*
- 42.4: **Characterization of Electrochemically Active Defects in Si-Film Laser Crystallized with Directional SLS by Measuring the Stress Release during Secco Etching**  
*Nobuo Sasaki, Okayama Prefectural University, Sojya, Japan*

**Session 43: Backlight Driving: Color Processing (Display Electronics)**

**Thursday, June 4 / 9:00 – 10:20 / Room 217C/D**

**Chair:** *Seung-Woo Lee, Kyung Hee University*

**Co-Chair:** *Michiel A. Klompenhouwer, Philips Research Laboratories*

- 43.1: **Color Optimization Model for High-Dynamic-Range LCDs with RGB Color Backlights**  
*Yi-Ling Chen, National Chiao Tung University, Hsinchu, Taiwan*
- 43.2: **Energy-Recycling Techniques for Field-Sequential-Color Backlight Driving**  
*Ming-Hsin Huang, National Chiao Tung University, Hsinchu, Taiwan*
- 43.3: **RGB LED Backlight of Color-Sequential Display with Precise Current-Balance Control Technique**  
*Chia-Lin Chiu, National Chiao Tung University, Hsinchu, Taiwan*
- 43.4: **Colorimetric Transformation with Two Sets of LED Backlights for Multi-Primary LCD**  
*Pei-Lin Hsieh, Chunghwa Picture Tubes, Ltd., Taoyuan, Taiwan*

**Session 44: Organic TFTs (Flexible Displays)**

**Thursday, June 4 / 10:40 am – 12:00 pm / Ballroom C1**

**Chair:** *Bruce Gnade, University of Texas at Dallas*

**Co-Chair:** *Kevin Gahagan, Corning Incorporated*

- 44.1: **Introducing a Two-Stage Fully Organic AMOLED Display: From Design to Fabrication**  
*Omid Yaghmazadeh, LPICM, Ecole Polytechnique, Palaiseau, France*
- 44.2: **A Reliable Flexible OLED Display with an OTFT Backplane Manufactured Using a Scalable Process**  
*Mao Katsuhara, Sony Corp., Kanagawa, Japan*
- 44.3: **Flexible Electrophoretic Displays with Jet-Printed Backplanes**  
*Jurgen Daniel, Palo Alto Research Center, Inc., Palo Alto, CA, USA*
- 44.4: **Invited Paper: Organic TFTs Based on Semiconducting Nanofibers Embedded in Insulating Polymer**  
*Kilwon Cho, Pohang University of Science and Technology, Pohang, Korea*

**Session 45: Fast Response II (Liquid-Crystal Technology)**

**Thursday, June 4 / 10:40 am – 12:10 pm / Ballroom C2**

**Chair:** *Philip J. Bos, Kent State University*

**Co-Chair:** *Tatsuo Uchida, Tohoku University*

- 45.1: **Fabrication of Fast Switchable Patterned Vertical-Alignment Mode Using Modified Surface with Reactive Mesogen**  
*Jae Hoon Kim, Hanyang University, Seoul, Korea*
- 45.2: **An Over-500-Hz Frame-Rate-Drivable PSS-LCD: Its Basic Performance**  
*Norio Koshida, Nano Loa, Inc., Kawasaki, Japan*
- 45.3: **Quasi-Impulsive Driving for High-Speed Operation of a Homogeneously Aligned LC Cell with Three-Electrode Structure**  
*Ki-Han Kim, Pusan National University, Busan, Korea*
- 45.4: **Invited Paper: Enhancing the Energy Efficiency of TFT-LCDs**  
*Shin Tson Wu, University of Central Florida, Orlando, FL, USA*

**Session 46: OLED Mechanisms (OLEDs)**

**Thursday, June 4 / 10:40 am – 12:10 pm / Ballroom C3**

**Chair:** *Chishio Hosokawa, Idemitsu Kosan Co., Ltd.*

**Co-Chair:** *Yasunori Kijima, Sony Corp.*

- 46.1: **Invited Paper: Photochemical Processes in OLEDs**  
*Sebastian Scholz, Technische Universität Dresden, Dresden, Germany*
- 46.2: **Invited Paper: Enhanced Long-Term Stabilities in Fluorescent and Phosphorescent OLED**  
*Hideyuki Murata, Japan Advanced Institute of Science & Technology, Ishikawa, Japan*
- 46.3: **Role of Chemical Transformations of Hole-Transport Materials in Operational Degradation of the Current Generation of Highly Efficient Fluorescent OLEDs**  
*Denis Kondakov, Eastman Kodak Co., Rochester, NY, USA*
- 46.4: **OLEDs Containing an Emissive Dinuclear Copper Dopant**  
*Joseph Deaton, Eastman Kodak Co., Rochester, NY, USA*
- 46.5: **Late-News Paper: Confinement of Triplet-Excited States by Fluorinated Polyvinylcarbazole for High Efficiency OLEDs**  
*Shintaro Enomoto, Toshiba Corporation, Kawasaki, Japan*

**Session 47: Image-Quality Evaluation (Applied Vision / Human Factors)**

**Thursday, June 4 / 10:40 am – 12:00 pm / Room 214A/B**

**Chair:** *Yoshifumi Shimodaira, Shizuoka University*

**Co-Chair:** *Ingrid Heynderickx, Philips Research Laboratories*

- 47.1: **Invited Paper: Human Vision in Complex Environments**  
*Mary Hayhoe, University of Texas at Austin, Austin, TX, USA*
- 47.2: **Visual Preference for Cleartype Technology**  
*Joyce Farrell, Stanford University, Stanford, CA, USA*
- 47.3: **Advanced Algorithm for Band Mura Analysis and Quantification in LCD Panels**  
*Chien-Wen Chen, AU Optronics Technology Center, Hsinchu, Taiwan*
- 47.4: **A Novel Algorithm for Overdrive Optimization**

**Session 48: Slim LCD-TV (Display Systems)**

**Thursday, June 4 / 10:40 am – 12:00 pm / Room 214C/D**

**Chair:** Sungkyoo Lim, Dankook University

**Co-Chair:** Masaru Suzuki, SKC Haas Display Films

**48.1: Low-Cost Large-Area LED Backlight**

James Gourlay, Design LED Products, Ltd., Livingston, Scotland

**48.2: Ultra-Thin IPS-Pro LCD-TVs Using Simple Side-Edge Backlight with RGB-LED and Novel Heat Radiation Structure**

Akitoyo Komno, Hitachi Materials Research Laboratory, Hitachi, Japan

**48.3: Ultra-Slim TV-Module Technology**

Seong Sik Choi, Samsung Electronics Co., Ltd., Kyunggi-do, Korea

**48.4: Invited Paper: Adaptive Luminance and Power Control (ALPC) of LED-Backlight Units**

Gi Cheri Kim, Samsung Electronics Co., Ltd., Kyunggi-do, Korea

**Session 49: Display Manufacturing: Patterning (Display Manufacturing)**

**Thursday, June 4 / 10:40 am – 12:10 pm / Room 217A/B**

**Chair:** Ion Bitu, Qualcomm MEMS Technologies

**Co-Chair:** Toshiaki Arai, Sony Corp.

**49.1: Fabrication of 26-in. PVA LCD Panel by Laser Ablation Process**

Yonghwan Shin, Samsung Electronics Co., Ltd., Kyunggi-do, Korea

**49.2: Application of Multi-Tone Mask Technology in Photolithographic Fabrication of Color-Filter Components in LCD**

Tsunehiro Sai, Mitsubishi Chemical Corp., Yokohama, Japan

**49.3: Growth Mechanism and Inhibition of a Progressive Contamination on the Surface of a Photomask for a Long LCD-TFT Lithography Process**

Yoshinori Yanagita, Asahi Kasei EMD Corp., Miyazaki, Japan

**49.4: Advanced RGBW Panel with High-Planarization Overcoat Material**

So Young Noh, LG Display Co., Ltd., Kyunggi-do, Korea

**49.5: Late-News Paper: Roll-to-Roll Manufacturing of Electronic Skins**

Tim Koch, Hewlett-Packard, Corvallis, OR USA

**49.6: Late-News Paper: Transparent Planarizing Films for Low Temperature Display Applications**

Edward Rutter, Jr., Honeywell Electronic Materials, Sunnyvale, CA USA

**Session 50: Backlight Driving: High-Dynamic-Range Processing (Display Electronics)**

**Thursday, June 4 / 10:40 am – 12:00 pm / Room 217C/D**

**Chair:** Nikhil Balram, Marvell Semiconductor

**Co-Chair:** Achin Bhowmik, Intel Corp.

**50.1: Advanced Local Dimming and Scanning LED-Backlight Driving System Using Novel Driver IC**

Kyoung-Uk Choi, Samsung Electronics Co., Ltd., Kyunggi-do, Korea

**50.2: Power Savings by Local Dimming on a LCD Panel with Side-Lit Backlight**

Hendriek Groot Hulze, NXP Research, Eindhoven, The Netherlands

**50.3: A Video-Capable Algorithm for Local-Dimming RGB Backlight**

Marc Albrecht, Saarland University, Saarbruecken, Germany

**50.4: Segment-Color-Control (SCC) Method for Color-Controlled Backlight of High-Dynamic-Range LCD-TVs**

Guo Zhen Wang, National Chiao Tung University, Hsinchu, Taiwan

**Session 51: E-Paper (Flexible Displays)**

**Thursday, June 4 / 1:30 – 2:50 pm / Ballroom C1**

**Chair:** Janglin Chen, DTC/TRI

**Co-Chair:** Robert W. Zehner, E Ink Corp.

**51.1: Invited Paper: Flexible CMOS and Electrophoretic Displays**

David Allee, Arizona State University, Tempe, AZ, USA

**51.2: Improvement of Reflectance and Contrast Ratio of Low-Power-Driving Bendable Color Electronic Paper Using ChLCs**

Yoshihisa Kurosaki, Fujitsu Laboratories, Ltd., Kanagawa, Japan

**51.3: Using of Transparent Conductive Polymer for Electrode Materials in Flexible Electronic Paper**

Masayuki Nishii, Bridgestone Corp., Tokyo, Japan

**51.4: Development of Flexible Electrowetting Displays for Stacked Color**

Kenneth Dean, Motorola, Tempe, AZ, USA

**Session 52: LC Alignment (Liquid-Crystal Technology)**

**Thursday, June 4 / 1:30 – 2:40 pm / Ballroom C2**

**Chair:** Akihiro Mochizuki, Nano Loa USA, Inc.

**Co-Chair:** Huang-Ming P. Chen, National Chiao Tung University

**52.1: Invited Paper: Advanced MVA III Technology for High-Quality LCD TVs**

- Chung-Yi Chiu, AU Optronics Corp., Hsinchu, Taiwan
- 52.2: **S-mPVA LCD Technologies for Superior Off-Axis Image Quality**  
*Jae Hyun Kim, Samsung Electronics Co., Ltd, Cheonchungnam-do, Korea*
- 52.3: **New Method of Vertical Alignment by Using Nanostructures**  
*Tadashi Kawamura, Sharp Corp., Nara, Japan*
- 52.4: **Late-News Paper: Continuous Control of Spatially-Homogeneous Nematic Pretilt Angle using Mixtures of Two Polyimide Alignment materials**  
*Ji-Hoon Lee, Case Western University, Cleveland, OH USA*

**Session 53: AMOLED Displays (OLEDs)**

**Thursday, June 4 / 1:30 – 2:50 pm / Ballroom C3**

**Chair: Jang Hyuk Kwon, Kyung Hee University**

**Co-Chair: Mike Hack, Universal Display Corp.**

- 53.1: **Invited Paper: Creation Processes and Elements of TFT-LCD and OLED Business Ecosystems**  
*Antti Laaperi, Nokia, Helsinki, Finland*
- 53.2: **Invited Paper: Large-Area Color-Patterning Technology for AMOLEDs**  
*Min Chul Suh, Samsung SDI Co., Ltd., Kyunggi-do, Korea*
- 53.3: **High-Performance Top-Emitting Green-OLED Microdisplays**  
*Tariq Ali, eMagin Corp., Hopewell Junction, NY, USA*
- 53.4: **Development of the World's Largest (31-in.) Full-HD AMOLED TV Using LTPS-TFTs and RGB FMM**  
*Myung Ho Lee, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*

**Session 54: 3-D (Applied Vision / Human Factors)**

**Thursday, June 4 / 1:30 – 2:50 pm / Room 214A/B**

**Chair: Sakuichi Ohtsuka, Kagoshima University**

**Co-Chair: Yi Pai Huang, National Chiao Tung University**

- 54.1: **Invited Paper: Human Factors of Stereoscopic Displays**  
*Robert Patterson, Washington State University, Pullman, WA, USA*
- 54.2: **The Effect of Dynamic Crosstalk for Stereoscopic 3-D Moving Images**  
*Chieh-Yao Chiang, National Chiao Tung University, Hsinchu, Taiwan*
- 54.3: **Effect of Viewing Duration to Visual Comfort with Near-to-Eye Displays**  
*Viljakaisa Aaltonen, Nokia, Tampere, Finland*
- 54.4: **Stereoscopic Depth Perception and Interocular Luminance Differences**  
*Robert Patterson, Washington State University, Pullman, WA, USA*

**Session 55: LED Backlights (Display Systems / Applications)**

**Thursday, June 4 / 1:30 – 2:50 pm / Room 214C/D**

**Chair: Masaru Suzuki, SKC Haas Display Films**

**Co-Chair: Ron Warden, The Boeing Co.**

- 55.1: **Edge-Lit Hollow Backlight Using Tunable Reflective Polarizer for LCDs**  
*John Wheatley, 3M, Saint Paul, MN, USA*
- 55.2: **The Optical Design and Optimization of Light-Guide Film for Ultra-Thin 1.9-in. Panel**  
*Fu Cheng Fan, AU Optronics Corp., Hsinchu, Taiwan*
- 55.3: **Diffractive Backlight Light-Guide Plates in Mobile Electrowetting Display Applications**  
*Jyrki Kimmel, Nokia Research Center, Tampere, Finland*
- 55.4: **Improvement of Thermal Uniformity of LED-Backlight Module by Irregular Bracket Design**  
*Hung Ling Yang, AU Optronics Corp., Hsinchu, Taiwan*

**Session 56: Display Manufacturing: Interconnects and Metalizations (Display Manufacturing)**

**Thursday, June 4 / 1:30 – 2:50 pm / Room 217A/B**

**Chair: Lauren F. Palmateer, Qualcomm MEMS Technologies**

**Co-Chair: Toshiaki Arai, Sony Corp.**

- 56.1: **A Novel Composite Bump Design for Chip-on-Glass Package Using Non-Conductive Adhesive Film**  
*Wei-Hao Sun, HannStar Display Corp., Kaohsiung, Taiwan*
- 56.2: **Effects of Localized Warpage and Stress on Chip-on-Glass Packaging Induced-Light-Leakage Phenomenon in 13-in. TFT-LCD**  
*Jihperng Leu, National Chiao-Tung University, Hsinchu, Taiwan*
- 56.3: **High-Corrosion-Resistance Mo Alloy for TFT-LCD and Touch-Screen-Panel Metallization**  
*Joerg Winkler, Plansee Metall GmbH, Reutte, Austria*
- 56.4: **Formation of Single-Layered Al-Alloy Interconnection for Source and Drain of a-Si TFT Using One Wet and One Dry Etching Process for a Four-Mask Process**  
*Hiroshi Goto, Kobe Steel, Ltd., Kobe, Japan*

**Session 57: Video Processing and Motion Fidelity (Display Electronics)**

**Thursday, June 4 / 1:30 – 2:50 pm / Room 217C/D**

**Chair:** Michiel A. Klompenhouwer, Philips Research Laboratories

**Co-Chair:** Xu Dong, PLM, Inc.

- 57.1: **Invited Paper:** Key Requirements for High-Quality Frame-Rate Conversion  
Claus Nico Cordes, NXP Semiconductors, Eindhoven, The Netherlands
- 57.2: **Invited Paper:** A Consideration on Motion-Image-Quality Improvement of LCD- TVs  
Taiichiro Kurita, NHK Science & Technical Research Laboratories, Tokyo, Japan
- 57.3: Adaptive Digital Video Format Converter IC Featuring Qdeo True Color and Image Depth Expansion  
Bipasha Ghosh, Marvell India Private Ltd., Bangalore, India
- 57.4: Fast MPRT with High-Brightness LCD by 120-Hz Local-Blinking HDR Systems  
Lin Yao Liao, National Chiao Tung University, Hsinchu, Taiwan

## Poster Session

Thursday, June 4 / 4:00 – 7:00 pm / Exhibit Hall D

### Active-Matrix Devices

- P.1: Self-Modulated Amorphous Front and Back Light Sensors with Wide Dynamic Range  
Yan-Fu Kuo, National Chiao Tung University, Hsinchu, Taiwan
- P.2: Integrated a-Si Circuit for Capacitively Coupled Drive Method in TFT-LCDs  
Jun Ma, Shanghai Tianma Micro-Electronics Co., Ltd., Shanghai, China
- P.3: Scaling of a-Si TFT Gate Drivers  
Yong Ho Jang, LG Display Co., Ltd., Kyunggi-do, Korea
- P.4: Integrated a-Si TFT Gate Driver with Reducing Clock Duty Ratio  
Shyh-Feng Chen, AU Optronics Corp., Hsinchu, Taiwan
- P.5: Self-Release Nickel-Induced Lateral-Crystallized (SR-NILC) Low-Temperature Polycrystalline-Si Films and TFTs  
Shuyun Zhao, Hong Kong University of Science and Technology, Kowloon, Hong Kong
- P.6: A Poly-Si TFT Fabricated by a Novel Laser-Crystallization Technique Using Blu-ray Disc Technology  
Akio Machida, Sony Corp., Kanagawa, Japan
- P.7: Ga-Doped ZnO Transparent Conductive Film as Substitution for ITO Common Electrode in TFT-LCDs  
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- P.153: Exciton Distribution and Microcavity Effects in Designing Top-Emitting OLED Devices**  
*Ilyas Khayrullin, eMagin Corp., Hopewell Junction, NY, USA*
- P.154: Broadband and Wide-Viewing-Angle Black Cathode for OLEDs**  
*Tien-Lung Chiu, National Taiwan University, Taipei, Taiwan*
- P.155: OLED Display Attached by Patterned Microlens Array for Light Extraction with Negligible Image Blur**  
*Jiun-Haw Lee, National Taiwan University, Taipei, Taiwan*
- P.156: Microcavity Structures for RGBW OLED Displays**  
*Ronald Cok, Eastman Kodak Co., Rochester, NY, USA*
- P.157: Highly-Efficient Gas-Diffusion Barriers Based on Nanolaminates Prepared by Low-Temperature ALD**  
*Thomas Riedl, Technical University of Braunschweig, Braunschweig, Germany*
- P.158: Highly Efficient Ionic p-i-n Phosphorescent OLEDs Made by Solution Processing**  
*Young In Lee, Kwangwoon University, Seoul, Korea*
- P.159: Decomposable Alkali Compounds for Transparent Cathodes in OLEDs**  
*Yong Qiu, Tsinghua University, Beijing, China*
- P.160: Ultra-Simple White OLEDs Using only Three Organic Materials**  
*Young Kwan Kim, Hongik University, Seoul, Korea*
- P.161: Effectiveness of P-Dopants In an Organic Hole-Transporting Material**  
*Jang Joo Kim, Seoul National University, Seoul, Korea*
- P.162: Application of Mixed-Host and Hole-Blocking for High-Efficiency White OLEDs**  
*Tien-Shou Shieh, ITRI, Hsinchu, Taiwan*
- P.163: Achieving High Directionality and Extraction of Light Emission from Polymer LEDs via ITO/Organic Photonic Crystals**  
*Paul C.-P. Chao, National Chiao Tung University, Hsinchu, Taiwan*
- P.164: Surface Plasmon Mediated Luminescent Enhancement of Polymer LEDs Using Dual-Functional Hole Injection Layer**  
*Pi-Ju Cheng, National Chiao Tung University, Hsinchu, Taiwan*
- P.165: Highly Efficient Ink-Jet-Printed Small Molecular Phosphorescent OLEDs**  
*Mi-Na Kim, Kwangwoon University, Seoul, Korea*
- P.166: All-Solution-Processed Multilayered Small-Molecule OLEDs with High Device Efficiency**  
*Hsin-Rong Tseng, National Chiao Tung University, Hsinchu, Taiwan*
- P.167: Effect of Energy Level of Hole-Blocking Layer on the EL Characteristics of Highly Soluble Ir(III)-Complex-Based Phosphorescent OLEDs**  
*Young Wook Park, Korea University, Seoul, Korea*
- P.168: Enhancing Efficiency of Light-Emitting Devices by Using Dewetting Metallic Thin Film**  
*Yeong Der Yao, Tatung University, Taipei, Taiwan*
- P-178: White OLED Panel with RGBW Color-Filter Based on Dual-Plate OLED Display (DOD) Structure**  
*Chang-Wook Han, LG Display Co. Ltd, Kyunggi-do, Korea*
- P.196: *Late-News Poster*: Micro-Cavity Design of RGBW AMOLED for Wide Color Gamut and Low Color Shift**  
*Baek-Woon Lee, Samsung Mobile Display, Yongin, Gyeonggi-do Korea*

## Projection

- P.169: Light Recycling: Some General Design Guidelines**  
*George Ouyang, Wavien, Inc, Valencia, CA, USA*
- P.170: Micromirror Array Fabricated by Using the CMOS Process for Applications of MEMS Display**  
*Pin-Hsu Kao, National Chung Hsing University, Taichung, Taiwan*
- P.171: Speckle Simulation in Laser-Scanning Display System**  
*Wei Huang, Suzhou Institute of Nano-Tech and Nano-Bionics, CAS, Suzhou, China*
- P.172: A 0.38-in. LCoS Backplane for Color-Sequential and Color-Filter Projector Applications**  
*Chiu Ho Wong, The Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- P.173: A 0.38-in. Field-Sequential-Color LCoS Microdisplay for Mobile Projectors**  
*Kuan-Hsu Fan Chiang, National Chiao Tung University, Hsinchu, Taiwan*
- P.174: Ultra-Compact Projection System Using an OLED Source for Mobile Application**  
*Constanze Grossmann, Fraunhofer IOF, Jena, Germany*
- P.175: Linearly Polarized Lamp with In-House Light Recycling**  
*Chang-Ching Tsai, University of Central Florida, Orlando, FL, USA*
- P.176: Method of Despeckle in a Laser-Source Microdisplay Projector**  
*John Domm, Christie Digital, Inc., Kitchner, Ontario, Canada*
- P.177: LED Projectors Based on Angular Color Method**  
*Yong-Jing Wang, Display Photonics, Inc, Valencia, CA, USA*
- P.197: *Late-News Poster*: Electronically-Adjustable Throw Angle in a Scanning Fiber Pico Projector**  
*Brian Schowengerdt, University Of Washington, Seattle, WA USA*
- P.198: *Late-News Poster*: High Luminance Uniformity Flat Fluorescent Lamp for Dual View LCD Backlight Application**  
*Sungkyoo Lim, Dankook University, Cheonan, Chungnam Korea*

**Session 58: Emerging Active-Matrix Technologies (*Flexible Displays / Active-Matrix Devices*)**

**Friday, June 5 / 9:00 am – 10:20 am / Ballroom C1**

**Chair:** *Shawn O'Rourke, Arizona State University*

**Co-Chair:** *Hyun Jae Kim, Yonsei University*

- 58.1: **A 4.1-in. Flexible QVGA AMOLED Using a Microcrystalline-Si:H TFT on a Polyimide Substrate**  
*Jung-Jie Huang, ITRI, Hsinchu, Taiwan*
- 58.2: **In-Cell-Type Adaptive Touch for Electrophoretic Display**  
*Sang-Soo Kim, LG Display Co., Ltd., Kyunggi-do, Korea*
- 58.3: **Fabrication of Zinc Tin Oxide TFT by Self-Aligned Imprint Lithography (SAIL) on Flexible Substrates**  
*William Tong, Hewlett-Packard Co., Corvallis, OR, USA*
- 58.4: **Invited Paper: Solution Assembly of Transistor Arrays Based on Sorted Nanotube Networks for Large-scale Flexible Electronic Applications**  
*Zhenan Bao, Stanford University, Palo Alto, CA, USA*

**Session 59: Optical Films for LCDs (*Liquid-Crystal Technology*)**

**Friday, June 5 / 9:00 – 10:20 am / Ballroom C2**

**Chair:** *James E. Anderson, 3M*

**Co-Chair:** *Shin Tson Wu, University of Central Florida*

- 59.1: **Development of Near-Zero Optical Retardation Film from Cyclic Block Copolymers**  
*Weijun Zhou, The Dow Chemical Company, Freeport, TX, USA*
- 59.2: **Development of New Optical Films for LCDs**  
*Takatoshi Yosomiya, Dai Nippon Printing Co., Ltd., Tokyo, Japan*
- 59.3: **Retardation Film Made from Negative Intrinsic Birefringent Material**  
*Shuhei Okude, Optes, Inc., Tokyo, Japan*
- 59.4: **Novel Retardation Film with Nano-Scale Multi-Layered Structure**  
*Yuhei Ono, Teijin Ltd., Tokyo, Japan*

**Session 60: White OLEDs (*OLEDs*)**

**Friday, June 5 / 9:00 – 10:10 am / Ballroom C3**

**Chair:** *Tariq A. Ali, eMagin Corp.*

**Co-Chair:** *Denis Y. Kondakov, Eastman Kodak Co.*

- 60.1: **Invited Paper: Tandem Hybrid White OLED Devices with Improved Light Extraction**  
*Yuan-Sheng Tyan, Eastman Kodak Co., Rochester, NY, USA*
- 60.2: **High-Color-Rendering White Tandem OLEDs Composed of Two Different White Emissive Units with Complementary Colors**  
*Takahiro Ushikubo, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan*
- 60.3: **Two Stacked White OLEDs Consisting of Fluorescent and Phosphorescent Hybrid Structure with High Efficiency and Good Color Characteristics**  
*Chang-Wook Han, LG Display Co., Ltd, Kyunggi-do, Korea*
- 60.4: **Late-News Paper: High Efficiency 200-lm/W Green light Emitting Organic Devices Prepared on High-Index of Refraction Substrate**  
*Akiyoshi Mikami, Kanazawa Institute of Technology, Ishikawa, Japan*

**Session 61: Image-Quality Modelling (*Applied Vision / Human Factors*)**

**Friday, June 5 / 9:00 – 10:20 am / Room 214A/B**

**Chair:** *Eli Peli, Schepens Eye Research Institute, Harvard Medical School*

**Co-Chair:** *Jennifer Gille, Qualcomm*

- 61.1: **Invited Paper: Gaze Contingent Displays: Analysis of Saccadic Plasticity in Visual Search**  
*Wilson Geisler, University of Texas at Austin, Austin, TX, USA*
- 61.2: **Image-Quality Modelling of a Mobile Display under Various Ambient Illumination**  
*Jang Jin Yoo, University of Leeds, Leeds, UK*
- 61.3: **Subjective Annoyance and User Acceptance of LCD Motion Blur**  
*Sylvain Tourancheau, IRCCyN, University of Nantes, Nantes, France*
- 61.4: **Quantization in Medical-Imaging Displays: Initial Model Observer Results for a High-Luminance-Range Dual-Layer LCD**  
*Aldo Badano, CDRH/FDA, Silver Spring, MD, USA*

**Session 62: RGBW Color (*Display Systems*)**

**Tuesday, June 2 / 3:40 – 5:00 pm / Room 214C/D**

**Chair:** *Kalil Käläntär, Nippon Leiz*

**Co-Chair:** *Michiel A. Klompenhouwer, Philips Research Laboratories*

- 62.1: **Five-Primary-Color 60-in. LCD with Novel Wide Gamut and Wide Viewing Angle**  
*Shun Ueki, Sharp Corp., Nara, Japan*
- 62.2: **Adaptive White Extension for Peak Luminance Increase in RGBW AMOLED**  
*Alexander Arkhipov, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 62.3: **Exploiting the Flexibility of RGBW OLED Displays: Trading Color Saturation for Power**

Michael Miller, Eastman Kodak Co., Rochester, NY, USA

- 62.4: **Power and Lifetime Modeling of White Formulations for WRGBW Display Applications**  
David Giesen, Eastman Kodak Co., Rochester, NY, USA

**Session 63: Display Manufacturing: OLEDs (Display Manufacturing)**

**Friday, June 5 / 9:00 – 10:10 am / Room 217A/B**

**Chair:** Fan-Chen F. Luo, AU Optronics Corp.

**Co-Chair:** Byung Chul Ahn, LG Display Co., Ltd.

- 63.1: **Responsive Vacuum-Deposition Technology for Cost-Effective OLED Manufacturing**  
Michael Long, Eastman Kodak Co., Rochester, NY, USA
- 63.2: **AMOLED Displays Using Transfer-Printed ICs**  
John Hamer, Eastman Kodak Co., Rochester, NY, USA
- 63.3: **Multinozzle Printing: A Cost-Effective Process for OLED-Display Fabrication**  
Reid Chesterfield, Dupont Displays, Inc., Santa Barbara, CA, USA
- 63.4: **Late-News Poster: Impacts of Glass Substrate and Frit Properties on Sealing**  
Lu Zhang, Corning Inc., Corning, NY USA

**Session 64: Interface Technologies (Display Electronics)**

**Friday, June 5 / 9:00 – 10:30 am / Room 217C/D**

**Chair:** Richard McCartney, National Semiconductor

**Co-Chair:** Tae Sung Kim, Apple, Inc.

- 64.1: **A Reduced Voltage Differential Signaling (RVDS) Interface for Chip-on-Glass TFT-LCD Applications**  
Jung Pil Lim, Samsung Electronics Co., Ltd., Kyunggi-do, Korea
- 64.2: **Invited Paper: Advanced LCD Driver Technologies**  
Hiroshi Hayama, NEC Electronics Corp., Kanagawa, Japan
- 64.3: **Design of Partially Cascaded Clock-Embedded Serial Link Intra-Panel Interface for a Flat-Panel-Display System**  
Ahreum Kim, Samsung Electronics Co., Ltd., Kyunggi-do, Korea
- 64.4: **Invited Paper: Wireless Panel Architecture Using Lossless Uncompressed 60-GHz Transmissions**  
Jeffrey Gilbert, SiBEAM, Sunnyvale, CA, USA
- 64.5: **Late-News Paper: A Clock Embedded Differential Signaling (CEDs) for the Next Generation TFT-LCD Applications**  
Hyun Kyu Jeon, Silicon Works, Daejeon, Korea

**Session 65: Flexible AMOLED (Flexible Displays)**

**Friday, June 5 / 10:40 am – 12:00 pm / Ballroom C1**

**Chair:** Chung-Chih Wu, National Taiwan University

**Co-Chair:** Ruiqing Ma, Universal Display Corp.

- 65.1: **Invited Paper: Amorphous-Silicon TFTs with 100-Year Lifetimes in a Clear Plastic Compatible Process for AMOLEDs**  
James Sturm, Princeton University, Princeton, NJ, USA
- 65.2: **World's Largest (6.5 in.) Flexible Full-Color Top-Emission AMOLED Display on Plastic Film and Its Bending Properties**  
Dong Un Jin, Samsung SDI Co., Ltd., Kyunggi-do, Korea
- 65.3: **3.1-in. Flexible Top-Emitting AMOLED on Plastic Substrate Driven by Organic TFTs**  
JingYi Yan, ITRI-DTC, Hsinchu, Taiwan
- 65.4: **Active-Matrix PHOLED Displays on Temporary Bonded Polyethylene Naphthalate Substrates with 180°C a-Si:H TFTs**  
Douglas Loy, Flexible Display Center, Tempe, AZ, USA

**Session 66: Novel LC Materials and Effects (Liquid-Crystal Technology)**

**Friday, June 5 / 10:40 am – 12:00 pm / Ballroom C2**

**Chair:** Michael Wand, LC Vision, LLC

**Co-Chair:** Shohei Naemura, Tottori University Electronic Display Research Center

- 66.1: **High-Birefringence and Negative-Dielectric-Anisotropy LC Mixture for Vertical-Alignment-Mode Applications**  
Sebastian Gauza, University of Central Florida, Orlando, FL, USA
- 66.2: **Effects of Diluters on High-Density and Low-Viscosity Negative-Dielectric Liquid Crystals**  
Qiong Song, University of Central Florida, Orlando, FL, USA
- 66.3: **Low-Temperature Effect on the Liquid-Crystal Response Time of Mobile Displays**  
Linghui Rao, University of Central Florida, Orlando, FL, USA
- 66.4: **Surface-Polarity-Controlled Horizontal-Chevron Defect-Free Surface-Stabilized Ferroelectric LC Devices**  
Chi Wen Lin, National Chiao Tung University, Hsinchu, Taiwan

**Session 67: Color (Applied Vision / Human Factors)**

**Friday, June 5 / 10:40 am – 12:20 pm / Room 214A/B**

**Chair:** Louis D. Silverstein, VCD Sciences, Inc.

**Co-Chair:** Helge Seetzen, Dolby Laboratories

- 67.1: **Evaluation of Gamut-Expansion Algorithms for Wide-Gamut Display**  
Masato Sakurai, Sony Corp., Tokyo, Japan

- 67.2: **Perceptual Effects of Reducing Blue Power**  
*Michael Miller, Eastman Kodak Co., Rochester, NY, USA*
- 67.3: **Preferred and Acceptable Color Gamut for Reproducing Natural Image Content**  
*Ingrid Heynderickx, Philips Research Laboratories, Eindhoven, The Netherlands*
- 67.4: **Relationship Between Upper-Limit Luminance for Surface-Color Mode Appearance and Preferred Gamut on Wide Gamut Display**  
*Masahiro Okui, Sharp Corp., Osaka, Japan*
- 67.5: **Image Detail and Color-Enhancement Based on Channel-Wise Local Gamma Adjustment**  
*Chen-Yu Tseng, National Chiao Tung University, Hsinchu, Taiwan*

**Session 68: Novel Backlights (Display Systems)**

**Friday, June 5 / 10:40 – 11:50 am / Room 214C/D**

**Chair:** *Kalil Kälántár, Nippon Leiz*

**Co-Chair:** *Robert L. Donofrio, Display Device Consultants LLC*

- 68.1: **Invited Paper: Design Scheme of LED Scanning Backlights for Field Sequential Color LCDs**  
*Kazuo Sekiya, Research Institute for Advanced Liquid Crystal Technology (RIAL), Aomori Support Center for Industrial Promotion, Aomori-ken, Japan*
- 68.2: **Novel Laser-Light-Source Backlight for LCDs**  
*Feng-Wei Ren, Foxconn, Shen Zhen, China*
- 68.3: **Dual-Side Slim LCD System with UV-Excited Flat Backlight**  
*Hsin-Tao Huang, National Chiao Tung University, Hsinchu, Taiwan*
- 68.4: **Optical Properties of Visible-Light Excited Phosphor Sheet (VEPS) System**  
*Bo Wen Xiao, National Chiao Tung University, Hsinchu, Taiwan*
- 68.5: **Late-News Paper: Monolithic Block-Wised Light Guide with Controlled Optical Crosstalk for Field-Sequential Color/Scanning LCD**  
*Kalil Kalantar, Nippon Leiz, Tokyo, Japan*

**Session 69: Display Manufacturing: Substrates (Display Manufacturing)**

**Friday, June 5 / 10:40 am – 12:00 pm / Room 217A/B**

**Chair:** *Elliott Schlam, Elliott Schlam Associates*

**Co-Chair:** *Lauren F. Palmateer, Qualcomm MEMS Technologies*

- 69.1: **Invited Paper: Materials and Component Solutions for Evolving Display Form Factors and Functionality**  
*Peter Bocko, Corning Incorporated, Tokyo, Japan*
- 69.2: **Designing Strong Glass for Mobile Applications**  
*Sinue Gomez, Corning Incorporated, Corning, NY, USA*
- 69.3: **Damage and Scratch Resistance of Cover Glass for Mobile Devices**  
*Jim Price, Corning Incorporated, Corning, NY, USA*
- 69.4: **Superior-Cuttability Performance of Jade? Glass for Thin and Strong Mobile Displays**  
*Toshihiko Ono, Corning Japan KK, Shizuoka, Japan*