

# ADVANCE PROGRAM

## 2008 SID INTERNATIONAL SYMPOSIUM

May 20–23, 2008 (Tuesday – Friday)  
Los Angeles Convention Center  
Los Angeles, California, USA

**Session 1: Annual SID Business Meeting**  
Tuesday, May 20 / 8:00 – 8:20 am / Petree Hall

**Session 2: Opening Remarks / Keynote Addresses**  
Tuesday, May 20 / 8:20 – 10:20 am / Petree Hall

**Session 3: AMOLEDs I (Active-Matrix Devices)**  
Tuesday, May 20 / 10:50 am – 12:10 pm / Concourse Hall 151  
**Chair:** Mike Hack, Universal Display Corp.  
**Co-Chair:** Takatoshi Tsujimura, Kodak Japan, Ltd.

- 3.1: **Distinguished Paper:** 12.1-in. WXGA AMOLED Display Driven by In-Ga-Zn-O TFT Arrays  
*Yeon-Gon Mo, Samsung SDI Co., Ltd., Kyunggi-do, Korea*
- 3.2: **Distinguished Paper:** 15-in. XGA Dual-Plate OLED Display (DOD) Based on a-Si TFT Backplane  
*Chang-Wook Han, LG.Philips LCD, Kyunggi-do, Korea*
- 3.3: **Invited Paper:** AMOLED Technologies for Uniform Image and Sufficient Lifetime of Image Sticking  
*Yojiro Matsueda, Samsung, SDI Co., Ltd., Kyunggi-do, Korea*
- 3.4: **Invited Paper:** A Novel Use of MEMS Switches in Driving AMOLEDs  
*Jun-Bo Yoon, KAIST, Daejeon, Korea*

**Session 4: Display Measurement Standards & Methods (Display Measurement)**  
Tuesday, May 20 / 10:50 am – 12:20 pm / Concourse Hall 152  
**Chair:** Stephen P. Atwood, Azonix Corp.  
**Co-Chair:** Thomas G. Fiske, Rockwell Collins Display Systems

- 4.1: **Tests and Methods of the ICDM**  
*Joe Miseli, Sun Microsystems, Inc., Menlo Park, CA, USA*
- 4.2: **International Metrology Standards for Reflective LCDs**  
*Jürgen Laur, autronic-Melchers GmbH, Karlsruhe, Germany*
- 4.3: **LCD Response-Time Evaluation in the Presence of Backlight Modulation**  
*Michael Becker, Display-Metrology & Systems, Karlsruhe, Germany*

**Session 5: Fast Response (Liquid-Crystal Technology)**  
Tuesday, May 20 / 10:50 am – 12:10 pm / Petree Hall  
**Chair:** Philip J. Bos, Kent State University  
**Co-Chair:** Kei-Hsiung Yang, Hannstar Display Corp.

- 5.1: **Analysis of the Anisotropy of Bend Transition for OCB LCDs with Low Initialization Voltage**  
*Yuko Kizu, Toshiba, Kawasaki, Japan*
- 5.2: **Field-Sequential-Color LCDs Based on Transient Modes**  
*Yuet-Wing Li, Hong Kong University of Science & Technology, Kowloon, Hong Kong*
- 5.3: **Polarity-Sensitive Switching Nematic System from the Assembly of Achiral Tripod-Shaped and Rod-Shaped Molecules**  
*Ji-Hoon Lee, Case Western Reserve University, Cleveland, OH, USA*
- 5.4: **Improvement of Fast-Response LC Materials by Bent-Core Dopants in OCB-Mode LCDs**  
*Hong-Cheu Lin, National Chiao Tung University, Hsinchu, Taiwan*
- 5.5: **Late-News Paper:** Electrically Accelerated Turn-Off Process in the Nematic Liquid Crystals with Dielectric Relaxation  
*Mingxia Gu, Kent State University, Kent, OH USA*

**Session 6: Display Manufacturing: Glass Substrates & Inspection (Display Manufacturing)**  
Tuesday, May 20 / 10:50 – 11:50 am / Room 403A  
**Chair:** Toshiaki Arai, Sony Corp.  
**Co-Chair:** Greg Gibson, FAS Technologies, LLC

- 6.1: **A Study of the Relationship between the Quality of the LCD Panel and the Nano-Scale Bumps of the Substrate Glass**  
*Kumi-Mi Oh, LG.Philips LCD, Kyunggi-do, Korea*
- 6.2: **Mechanical Properties of Code 2073-G Glass Substrate for Poly-Si Application**  
*Suresh Gulati, Corning Incorporated, Corning, NY, USA*
- 6.3: **Detection of a-Si Residue with Backlight LEDs**

Chung-Che Huang, Maxim Integrated Products, Sunnyvale, CA, USA

### Session 7: Field-Emission Displays I (FEDs)

Tuesday, May 20 / 10:50 am – 12:20 pm / Room 403B

Chair: Masayuki Nakamoto, Shizuoka University

Co-Chair: Myung Hwan Oh, Dankook University

- 7.1: **Invited Paper:** Technologies and Prospect of a Fine-Pitch FED Monitor  
*Yukinobu Iguchi, Field Emission Technologies, Gifu, Japan*
- 7.2: **Carbon Nanotubes Synthesized at Low Temperature and a Novel Self-Focusing Gated FED**  
*Yu-Ying Hsu, National Chiao Tung University, Hsinchu, Taiwan*
- 7.3: **Morphology Effect on Field-Emission Property of Carbon-Nanotube Emitters in Triode Structure**  
*Yiming Li, National Chiao-Tung University, Hsinchu, Taiwan*
- 7.4: **A Novel Luminescent-Efficiency-Enhancement Strategy for a 20-in. Carbon-Nanotube Backlight Units**  
*Shang-Ying Chung, Nation Tsing Hua University, Hsinchu, Taiwan*
- 7.5: **Distinguished Paper:** Fabrication of High-Brightness Flat Field-Emission Lamp with 6-kV Anode Voltage for Local-Dimming LCD BLU  
*Masayuki Nakamoto, Shizuoka University, Hamamatsu, Shizuoka, Japan*

### Session 8: Near-to-Eye and HMD Display Applications (Applications)

Tuesday, May 20 / 10:50 am – 12:10 pm / Room 408A

Chair: Susan K. Jones, e-Magin Corp.

Co-Chair: Jyrki Kimmel, Nokia Research Center

- 8.1: **Invited Paper:** Applications of the Sensics Panoramic HMD  
*Lawrence Brown, Sensics, Inc., Baltimore, MD, USA*
- 8.2: **Bi-Directional OLED Microdisplay for Interactive HMD**  
*Uwe Vogel, Fraunhofer Institute for Photonic Microsystems, Dresden, Germany*
- 8.3: **Design of a Compact Light Engine for FLCOS Microdisplays in a p-HMPD System**  
*Rui Zhang, University of Arizona, Tucson, AZ, USA*
- 8.4: **Distinguished Paper:** A Full-Color Eyewear Display Using Holographic Planar Waveguides  
*Hiroshi Mukawa, Sony Corp., Tokyo, Japan*

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

Tuesday, May 20 / 2:00 – 3:10 pm / Concourse Hall 151

Chair: Roger G. Stewart, Sourland Mountain Associates

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

- 9.1: **A Stable Full-Color AMOLED Display Using a-Si:H TFTs and White PHOLEDs**  
*Jin Jang, Kyung Hee University, Seoul, Korea*
- 9.2: **Sequential Lateral Solidification (SLS) Process for Large-Area AMOLEDs**  
*Jae Beom Choi, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 9.3: **A 15-in. AMOLED Display with SPC TFTs and a Symmetric Driving Method**  
*Sang-Hoon Jung, LG.Philips LCD R&D Center, Anyang, Korea*
- 9.4: **Late-News Paper:** Fast Current-Programming Method to OLED  
*Chang Hoon Shim, Kyushu University, Fukuoka, Japan*

### Session 10: Characterization of LCD Motion Artifacts (Display Measurement)

Tuesday, May 20 / 2:00 – 3:20 pm / Concourse Hall 152

Chair: Frank F. Rochow, LMT Lichtmesstechnik GmbH

Co-Chair: Michael R. Klein, Photo Research, Inc.

- 10.1: **Distinguished Paper:** Evaluation of Moving-Line Contrast Degradation without Motion  
*Michael Becker, Display-Metrology & Systems, Karlsruhe, Germany*
- 10.2: **Motion-Artifact Analysis on Scanning-Backlight LCD**  
*Wen Song, Southeast University, Nanjing, China*
- 10.3: **Overdrive LUT Optimization for LCD by Box Motion Blur Measurement and Gamma-Based Thresholding Method**  
*Hung-Xin Zhao, R2D, Hsinchu, Taiwan*
- 10.4: **Measurement of Moving-Picture Resolution for Displays Using Scrolled Sine-Bursts**  
*Isao Kawahara, Matsushita Electric Industrial Co. Ltd., Osaka, Japan*

### Session 11: LCD Contrast Enhancement (Liquid-Crystal Technology)

Tuesday, May 20 / 2:00 – 3:00 pm / Petree Hall

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

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

- 11.1: **Invited Paper:** Review of Viewing-Angle Compensation of TN-Mode LCDs Using WV Film  
*Tadashi Ito, FUJIFILM Corp., Kanagawa Japan*
- 11.2: **Improved Contrast Ratio in IPS-Pro LCD TV by Using Quantitative Analysis of Depolarized Light Leakage from Component Materials**

- Yuka Utsumi, Hitachi, Ltd., Ibaraki, Japan*  
**11.3: A New LCD Design for High Contrast Ratio**  
*Chih Wen Chen, AU Optronics Corp., Hsinchu, Taiwan*

**Session 12: Display Manufacturing: Flexible Substrates (*Display Manufacturing*)**

**Tuesday, May 20 / 2:00 – 3:10 pm / Room 403A**

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

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

- 12.1: Evaluation of Electrical Insulating Properties and Flexibility of Stainless-Steel Foil with Insulating Film**  
*Noriko Yamada, Nippon Steel Corp., Chiba, Japan*
- 12.2 Solution-Processable Passivation Layer for Active-Matrix TFTs on Rigid and Flexible Substrates**  
*Ahila Krishnamoorthy, Honeywell Electronics Materials, Sunnyvale, CA, USA*
- 12.3: Fluorescent Tag-Based Inspection of Barrier Coatings for OLEDs and Polymer Packages**  
*Yadong Zhang, University of Colorado at Boulder, Boulder, CO, USA*
- 12.4: *Late-News Paper:* Measurement of Water-Vapor Permeation in the Range of 10(-3) and 10(-5) g/m(2)/day for Application in Flexible Electronics.**  
*Holger Norenberg, Technolox Ltd., Oxford, UK*

**Session 13: Field-Emission Displays II (*FEDs*)**

**Tuesday, May 20 / 2:00 – 3:20 pm / Room 403B**

**Chair:** *Kenneth A. Dean, Motorola*

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

- 13.1: High-Luminance 1.8-mm-pitch CNT-FED for Ubiquitous Color Character Displays**  
*Junko Yotani, Noritake Co., Ltd., Mie, Japan*
- 13.2: Electrochemical Deposition of Carbon-Nanotube Films and Applications in FED Devices**  
*Lap-Tak Cheng, DuPont, Wilmington, DE, USA*
- 13.3: Novel Surface-Conduction Electron-Emitter (SCE) Nanogaps for FEDs**  
*Yi-Ting Kuo, National Chiao Tung University, Hsinchu, Taiwan*
- 13.4: Copper Nanowires with a Five-Twinned Structure Grown by CVD and Their Application to FEDs**  
*Changwook Kim, University of Illinois at Urbana-Champaign, Urbana, IL, USA*

**Session 14: Novel Display Applications (*Applications*)**

**Tuesday, May 20 / 2:00 – 3:40 pm / Room 408A**

**Chair:** *Andras I. Lakatos, Consultant*

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

- 14.1: *Invited Paper:* Challenges and Technologies for Multi-Channel Projection Systems**  
*Patrick Vandenberghe, BarcoView, Kortrijk, Belgium*
- 14.2: Double-Sided Reflective LCD (DSRL)**  
*Hyung Seok Park, LG.Philips LCD, Anyang, Korea*
- 14.3: Illumination Design of a Multi-Touch Sensing Projection Screen for Augmented Virtual Environments**  
*Sheng Liu, University of Arizona, Tucson, AZ, USA*
- 14.4: Integrating Multi-Touch Function with a Large-Sized LCD**  
*Sang Hyuck Bae, LG.Philips LCD, Seoul, Korea*
- 14.5 *Invited Paper:* Novel, Flexible AC Electroluminescent Lamps for Display Applications**  
*Jack Silver, Brunel University, London, UK*

**Session 15: Phosphor and Process (*Emissive Displays*)**

**Tuesday, May 20 / 2:00 – 3:20 pm / Room 408B**

**Chair:** *Ravi Rao, Nanogram*

**Co-Chair:** *Aron Vecht, Aron Vecht and Associates*

- 15.1: Improvement in the Contrast Ratio of PDPs in a Bright Room by Coating Phosphor with Pigment**  
*Euna Moon, LG Electronics, Inc., Seoul, Korea*
- 15.2: MOVED TO POSTER SESSION**
- 15.3: Anti-Electromigration of Lead-Free Ag / Frit Modified Address Electrodes in PDPs**  
*Chul-Hong Kim, Samsung SDI Co., Ltd., Chungcheongnam-do, Korea*
- 15.4: Tin Oxide Transparent Conductor for PDPs**  
*Bernard Feldman, Feldman Technology, Watsonville, CA, USA*

**Session 16: AMLCD TV (*Active-Matrix Devices*)**

**Tuesday, May 20 / 3:40 – 5:00 pm / Concourse Hall 151**

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

**Co-Chair:** *Nam Deog Kim, Samsung Electronics Co., Ltd.*

- 16.1: 82-in. Ultra-Definition LCD Using New Driving Scheme and Advanced Super-PVA Technology**  
*Sang Soo Kim, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*
- 16.2: A Novel Super-PVA Cell Structure with High Contrast Ratio**

- Su Jeong Kim, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*  
**16.3: Enhanced Oblique-Viewing-Angle Color Performance for Super-PVA Panels**  
*Bongim Park, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*  
**16.4: Development of Asymmetric-Gate-Coupled Eight-Domain (AGC-8D) HVA for TFT-LCD TVs**  
*Po-Sheng Shih, Hannstar, Taoyuan, Taiwan*

### **Session 17: OLED Devices (OLEDs)**

**Tuesday, May 20 / 3:40 – 5:00 pm / Concourse Hall 152**

**Chair:** *Ching W. Tang, University of Rochester*

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

- 17.1: *Invited Paper:* Inverted OLED**  
*Sehwan Son, LG Chemical Ltd., Daejeon, Korea*  
**17.2: Highly Efficient Ultraviolet Light-Emitting Organic Devices and Its Application to White-Light Source**  
*Akiyoshi Mikami, Kanazawa Institute of Technology, Ishikawa, Japan*  
**17.3: Highly Efficient Fluorescent / Phosphorescent OLED Devices Using Triplet Harvesting**  
*Marina Kondakova, Eastman Kodak Co., Rochester, NY, USA*  
**17.4: A Novel Technique to Study OLED Function**  
*Marc Sims, Dupont Displays, Inc., Santa Barbara, CA, USA*

### **Session 18: Liquid Crystal on Silicon (Liquid-Crystal Technology)**

**Tuesday, May 20 / 3:40 – 4:30 pm / Petree Hall**

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

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

- 18.1: Electronic Compensation for Fringe-Field Effects in VAN LCOS Microdisplays**  
*Dieter Cuyper, TFCG / IMEC, Zwijnaarde, Belgium*  
**18.2: Bistable FLC LCoS for Doubled-Brightness Microprojectors and Viewfinders**  
*Michael O'Callaghan, Displaytech, Longmont, CO, USA*  
**18.3: *Late-News Paper:* Polarization-Independent Liquid-Crystal Microdisplays**  
*Michael Escuti, North Carolina State University, Raleigh, NC, USA*

### **Session 19: Display Assembly & Packaging (Display Manufacturing)**

**Tuesday, May 20 / 3:40 – 5:00 pm / Room 403A**

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

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

- 19.1: *Invited Paper:* Driver-IC Packaging Technologies Using Anisotropic Conductive Films in Flat-Panel Displays**  
*Itsuo Watanabe, Hitachi Chemical Co. Ltd., Ibaraki, Japan*  
**19.2: *Invited Paper:* ACF Development History and New Solutions**  
*Motohide Takeichi, Sony Chemicals Corp., Tohigi, Japan*  
**19.3: Novel Defect-Repairing Method for Etched-Thinning LCDs**  
*Yu-Chen Liu, AU Optronics Corp., Hsinchu, Taiwan*  
**19.4: Development of Super View Resin: The Optical Elasticity Resin for LCD Modules**  
*Hirofumi Kondo, Sony Corp., Kanuma, Japan*

### **Session 20: 3-D Applications and Measurement Techniques (Applications / Display Measurement)**

**Tuesday, May 20 / 3:40 – 5:00 pm / Room 408A**

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

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

- 20.1: Mobile 3-D Displays Based on LTPS 2.4-in. VGA LCD Panel Attached with Lenticular Lens Sheets**  
*Sung-Min Jung, LG.Philips LCD, Kyunggi-do, Korea*  
**20.2: Stereoscopic 3-D Display Using Patterned Retarder**  
*Yu-Jun Wu, AU Optronics Corp., Hsinchu, Taiwan*  
**20.3: 2-D / 3-D Dual-Image Switchable Display**  
*Wei-Hung Kuo, AU Optronics Corp., Hsinchu, Taiwan*  
**20.4: Objective Evaluation of Multi-View Autostereoscopic 3-D Displays**  
*Marja Salmimaa, Nokia Research Center, Tampere, Finland*

### **Session 21: Plasma-Display Protective Layer (Emissive Displays)**

**Tuesday, May 20 / 3:40 – 5:10 pm / Room 408B**

**Chair:** *Harm Tolner, Tolner Technology*

**Co-Chair:** *Toshihiro Komaki, Pioneer Corp.*

- 21.1: Advanced Discharge Cell Design with CEL Realizing Very High Contrast over 20,000:1**  
*Taro Naoi, Pioneer Corp., Yamanashi, Japan*  
**21.2: Very-High-Contrast PDP Driving Method on Advanced CEL Cell Panel**  
*Koji Hashimoto, Pioneer Corp., Yamanashi, Japan*  
**21.3: Reconstruction Characteristics of MgO (111) Textured Protective Layer by Over-Frequency Accelerated Discharge in ACPDPs**

- Sang-Koo Kwon, LG Electronics Institute of Technology, Seoul, Korea*  
21.4: **Discharge Characteristics of ACPDPs Having Doped MgO Protective Layer for a Variations in Temperature**  
*Sung-Yong Cho, Pusan National University, Busan, Korea*  
21.5: **Late-News Paper: Measurement of Exo-Electron Emission from MgO Thin Film for ACPDPs**  
*Sang-Hoon Yoon, Hong-Ik Univ., Seoul, Korea*

**Session 22: OLED-Enabling Technologies (OLEDs)**

**Wednesday, May 21 / 9:00 – 10:30 am / Concourse Hall 152**

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

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

- 22.1: **Invited Paper: Technological Challenges for Large-Sized AMOLED Display**  
*Hye Dong Kim, Samsung SDI, Youngin, Korea*  
22.2: **Printable Phosphorescent OLEDs**  
*Sean Xia, Universal Display Corp., Ewing, NJ USA*  
22.3: **New Full-Color OLED Technology Based on Advanced-Color-Conversion Method Using Ink-jet Printing**  
*Hiroshi Kimura, Fuji Electric Advanced Technology Co., Ltd., Nagano, Japan*  
22.4: **Invited Paper: Tuning Solution-Processed OLEDs Toward R2R Printing**  
*Tilman Beierlein, Centre Suisse D'Electronique et de Microtechnique (CSEM), Basel, Switzerland*  
22.5: **Late-News Paper: High-Efficiency Solution-Processed Phosphorescent Green OLED Using a High-Quantum-Yield Iridium Complex**  
*Jwo-Huei Jou, National Tsing Hua University, Hsin-Chu, Taiwan*

**Session 23: Flexible Displays I (Active-Matrix Devices)**

**Wednesday, May 21, 2008 / 9:00 – 10:00 am / Petree Hall**

**Chair:** *Jin Jang, Kyung Hee University*

**Co-Chair:** *Jurgen Daniel, Palo Alto Reseach Center*

- 23.1: **Invited Paper: Models and Experiments of Mechanical Integrity for Flexible Displays**  
*Yves Leterrier, Laboratoire de Technologie Des Composites et Polymères (LTC), Ecole Polytechnique, Lausanne, Switzerland*  
23.2: **A 10-in. Printed Flexible Active-Matrix OTFT Array for QR-LPD Based Motion-Picture Displays**  
*Hiroki Maeda, Dai Nippon Printing Co., Ltd., Chiba, Japan*  
23.3: **Flexible Field-Sequential-Color FLCN Panels Driven by Poly-Si TFTs**  
*Yoji Iwamoto, Dai Nippon Printing Co., Ltd., Chiba, Japan*  
23.4: **Active-Matrix Backplanes Produced by Roll-to-Roll Self-Aligned Imprint Lithography**  
*Warren Jackson, Hewlett-Packard Laboratories, Palo Alto, CA, USA*

**Session 24: Array Manufacturing Processes (Display Manufacturing)**

**Wednesday, May 21, 2008 / 9:00 – 10:20 am / Room 403A**

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

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

- 24.1: **Three-Mask TFT Process by Using ITO Lift-Off Technique**  
*Kuo Lung Fang, AU Optronics Corp., Hsinchu, Taiwan*  
24.2: **Single-Layer Al-Ni-La-Si Interconnections for Source / Drain of LTPS-TFT LCDs Using Direct Contacts with ITO and Poly-Si**  
*Toshihiro Kugimiya, Kobelco Kaken, Inc., Hyogo, Japan*  
24.3: **32-in. LCD TV Using Conventional PECVD Microcrystalline-Silicon TFTs**  
*Ya-Hui Peng, AU Optronics Corp., Hsinchu, Taiwan*  
24.4: **A New Method for Cu Patterning**  
*Kang-il Kim, LG.Philips LCD R&D Centre, Kyunggi-do, Korea*

**Session 25: Novel 3-D Displays (Display Systems)**

**Wednesday, May 21 / 9:00 – 10:30 am / Room 403B**

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

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

- 25.1: **Distinguished Paper: Multi-Viewer Autostereoscopic Display with Dynamically Addressable Holographic Backlight**  
*Edward Buckley, Light Blue Optics, Ltd., Colorado Springs, CO, USA*  
25.2: **Eye-Tracking Solutions for Real-Time Holographic 3-D Display**  
*Norbert Leister, SeeReal Technologies GmbH, Dresden, Germany*  
25.3: **Autostereoscopic 2-D / 3-D Switching Display Using Electric-Field-Driven LC Lens (ELC Lens)**  
*Hungki Ki Hong, LG.Philips LCD, Kyunggi-do, Korea*  
25.4: **Invited Paper: Beyond Flat Panels: Multi-Layered Displays with Real Depth**  
*Gareth Bell, PureDepth, Auckland, New Zealand*  
25.5: **Invited Paper: An Updateable Holographic 3-D Display Based on Photorefractive Polymers**  
*Savas Tay, University of Arizona, Tucson, AZ, USA*

**Session 26: Motion Blur I (Display Electronics)**

**Wednesday, May 21 / 9:00 – 10:20 am / Room 408A**

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

**Co-Chair:** *John W. Parker, III, Research and Engineering Development, Inc.*

- 26.1: **Invited Paper:** Motion Interpolation / Frame-Rate Compensation for LCD TV  
*Brian Berkeley, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*
- 26.2: **Motion-Adaptive Alternating Gamma Drive for Flicker-Free Motion-Blur Reduction in 100/120-Hz LCD TV**  
*Tae Sung Kim, Marvell Semiconductor, Santa Clara, CA, USA*
- 26.3: **Motion Interpolation Performance of 120-Hz Display Systems**  
*Byung Hyuk Shin, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*
- 26.4: **The Temporal Aperture of Broadcast Video**  
*Frank Van Heesch, Philips Research Laboratories, Eindhoven, The Netherlands*

**Session 27: Plasma-Display Discharge (Emissive Displays)**

**Wednesday, May 21 / 9:00 – 10:20 am / Room 408B**

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

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

- 27.1: **Invited Paper:** High-Efficiency Plasma-Display Discharges  
*Gerrit Oversluizen, Philips Research Laboratories, Eindhoven, The Netherlands*
- 27.2: **Analysis of Discharges in High-Luminous-Efficacy PDP with 5 lm/W**  
*Toshiyuki Akiyama, Advanced PDP Development Center Corp., Hyogo, Japan*
- 27.3: **Fully Addressable Self-Assembled Microcavity Plasma Arrays: Improved Luminous Efficacy by Controlling Device Geometry**  
*Sung-Jin Park, University of Illinois, Urbana, IL USA*
- 27.4: **Characteristics of ACPDP Test Panels with Fence-Type Aluminum Electrode Formed via Anodic Bonding with Soda-Lime Glass**  
*Seog-Young Lee, Hongik University, Seoul, Korea*

**Session 28: LC Alignment (Liquid-Crystal Technology)**

**Wednesday, May 21 / 9:00 – 10:10 am / Room 502**

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

**Co-Chair:** *Masato Okabe, Dai Nippon Printing*

- 28.1: **Wide-Pretilt-Angle Control of LCD Device by Ion-Beam Exposure**  
*Joo-Hong Seo, Pusan National University, Pusan, Korea*
- 28.2: **NEXAFS Study of the Molecular Orientation of Polyimide Alignment Layer Used in TFT-LCDs**  
*Yong Taek Hwang, Samsung Electronics Co., Chungcheongnam-do, Korea*
- 28.3: **Novel Grating Alignment of LCs for Multi-Domain Structures**  
*Masaya Tamaki, Sony Corp., Kanagawa, Japan*
- 28.4: **Late-News Paper:** Effects of Azimuthal Anchoring Energy on In-Plane Switching-Mode LCD  
*Woo-Keun Lee, LG.Philips LCD, Anyang-shi, Gyonggi-do, Korea*

**Session 29: OLED Display Technology I (OLEDs)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Concourse Hall 152**

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

**Co-Chair:** *Chin (Fred) H. Chen, National Chiao Tung University*

- 29.1: **Invited Paper:** Recent Progress in Light-Emitting Polymers for Full-Color OLEDs  
*Takeshi Yamada, Sumitomo Chemical, Tsukuba, Japan*
- 29.2: **Invited Paper:** PEDOT-Based Layers for TCO-Substitution and Hole Injection  
*Andreas Elschner, H. C. Starck GmbH, Leverkusen, Germany*
- 29.3: **Combined Electrical and Optical Simulation of OLED Devices**  
*Robert Nitsche, Sim4tec, Dresden, Germany*
- 29.4: **Extraction Enhancement of OLED by Using Metallic Nanostructures**  
*Shen-Yu Hsu, Academia Sinica, Taiwan*

**Session 30: Flexible Displays II (Active-Matrix Devices)**

**Wednesday, May 21 / 10:40 – 11:40 am / Petree Hall**

**Chair:** *Jürgen Daniel, Palo Alto Research Center*

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

- 30.1: **Flexible Image Sensor Made of a-Si:H TFTs on Metal Foil**  
*Jin Jang, Kyung Hee University, Seoul, Korea*
- 30.2: **Active-Matrix Electrophoretic Displays on Temporary Bonded Stainless-Steel Substrates with 180°C a-Si:H TFTs**  
*Shawn O'Rourke, Arizona State University, Tempe, AZ, USA*
- 30.3: **Highly Flexible Low-Power-Consumption AMOLED Displays on Ultra-Thin Stainless-Steel Substrates**  
*Ray Ma, Universal Display Corp., Trenton, NJ, USA*

**Session 31: Display Manufacturing: Ink-Jet Printing (Display Manufacturing)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Room 403A**

**Chair:** *Peter A. Smith, Honeywell*

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

- 31.1: **Invited Paper: Ink-Jet Technology for Large-Sized Color-Filter Plates**  
*Jun Hyung Souk, Samsung Electronics Co. Ltd., Kyunggi-do, Korea*
- 31.2: **Invited Paper: Various Ink-Jet Methods for TFT Array Fabrication**  
*Shuichi Uchikoga, Toshiba Corporate Research Center, Kanagawa, Japan*
- 31.3: **The Fabrication of Single Substrate Multi-Color Cholesteric LCD by Ink-Jet Printing**  
*Jih-Ping Lu, Industrial Technology Research Institute, Chutung, Hsinchu, Taiwan*
- 31.4: **Solvent Effect on Uniformity of the Performance of Ink-Jet-Printed Organic TFTs for Flexible Displays**  
*Jin Jang, Kyung Hee University, Seoul, Korea*

**Session 32: Stereoscopic Displays (Display Systems)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Room 403B**

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

**Co-Chair:** *John W. Parker, III, Research And Engineering Development, Inc.*

- 32.1: **Stereoscopic TFT-LCD with Wire-Grid Polarizer and Retarder**  
*Jin Jang, Kyung Hee University, Seoul, Korea*
- 32.2: **The Improvement of In-Cell Microretarder for Stereoscopic LCD Fabrication**  
*Chao-Te Lee, National Taiwan University, Taipei, Taiwan*
- 32.3: **Liquid-Crystal Panel for High-Efficiency Autostereoscopic 3-D Displays**  
*Shang-Chih Chuang, National Tsing Hua University, Hsinchu, Taiwan*
- 32.4: **Invited Paper: The Pursuit of High-Definition 3-D Display Technology**  
*Chao-Hsu Tsai, Industrial Technology Research Institute, Chutung, Hsinchu, Taiwan*

**Session 33: Motion Blur II (Display Electronics)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Room 408A**

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

**Co-Chair:** *Haruhiko Okumura, Toshiba Corp.*

- 33.1: **Distinguished Paper: A Novel Technique for Overdrive Extraction by Measuring Only Two Gray-to-Gray Responses of a LCD**  
*Seung-Woo Lee, Kyung Hee University, Seoul, Korea*
- 33.2: **Development of Single-Chip Overdrive LSI with Embedded Frame Memory**  
*Jun Someya, Mitsubishi Electric Corp., Nagaokakyo, Japan*
- 33.3: **A Novel Image Compression Algorithm for Overdriving**  
*Sung Kyu Lee, Pohang University of Science and Technology, Pohang, Korea*
- 33.4: **Smooth-Frame-Insertion Method for Reducing Motion Blur on OLED Panels**  
*Hanfeng Chen, Samsung Electronics Co., Ltd., Kyunggi-do Korea*

**Session 34: Plasma-Display TV (Emissive Displays)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Room 408B**

**Chair:** *Tsutaie Shinoda, Shinoda Plasma Co., Ltd.*

**Co-Chair:** *Ki-Woong Whang, Seoul National University*

- 34.1: **Invited Paper: Development of World's Largest (150-in. Diagonal) Advanced High-Definition PDP**  
*H. Ashida, PDP / PAVC / Panasonic, Osaka, Japan*
- 34.2: **Invited Paper: Development of 1 x 2-m Plasma Tube Array (PTA) Technologies Ready for Ultra-Large Film Display**  
*Hitoshi Hirakawa, Shinoda Plasma Co., Ltd., Kobe, Japan*
- 34.3: **Development of Advanced ALIS PDP with Hybrid Driving Method**  
*Naoki Itokawa, Hitachi Ltd., Yokohama, Japan*
- 34.4: **Novel Priming Discharge Technique for 120-Hz FHD PDP**  
*Jeongduk Ryeom, Soongsil University, Seoul, Korea*

**Session 35: Transflective LCDs I (Liquid-Crystal Technology)**

**Wednesday, May 21 / 10:40 am – 12:00 pm / Room 502**

**Chair:** *Birendra Bahadur, Rockwell Collins, Inc.*

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

- 35.1: **Single-Cell-Gap Transflective FFS LCD Using Wire-Grid Polarizer**  
*Zhibing Ge, University of Central Florida, Orlando, FL, USA*
- 35.2: **A Novel Transflective OCB LCD for Mobile TV Applications**  
*I-Ann Yao, InnoLux Display Corp., Miaoli County, Taiwan*
- 35.3: **A New Single-Cell-Gap Transflective OCB-LCD with Fast Response Time and Wide Viewing Angle**  
*Ichiro Fukuda, Kanazawa Institute of Technology, Ishikawa, Japan*
- 35.4: **Advanced-MVA Mobile Technology for Fast-Switching LCDs**  
*Shih-Feng Hsu, AU Optronics Corp., Hsinchu, Taiwan*

**Session 36: OLED-Display Technology II (OLEDs)**

**Wednesday, May 21 / 3:30 – 4:50 pm / Concourse Hall 152**

**Chair:** *Julie J. Brown, Universal Display Corp.*

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

- 36.1: **Invited Paper:** **Cost-Competitive Vacuum-Deposition Technology for Small-Molecule OLED Manufacturing**  
*Michael Long, Eastman Kodak Co., Rochester, NY, USA*
- 36.2: **Invited Paper:** **Progress in Laser-Induced Thermal Imaging of OLEDs**  
*Martin Wolk, 3M, Saint Paul, MN, USA*
- 36.3: **An OLED with Highly Efficient Light Extraction Using Newly Developed Diffraction Layer**  
*Hiroshi Sano, Toshiba Matsushita Display Technology Co., Ltd., Ishikawa, Japan*
- 36.4: **A Novel Seamless Tiling Technology for High-Resolution OLED displays**  
*HongShik Shim, Samsung Advanced Institute of Technology, Kyunggi-do, Korea*
- 36.5: **Late-News Paper:** **The Light Distribution in OLEDs and Ways to Increase the Light-Outcoupling Efficiency**  
*Ansgar Werner, Novald AG, Dresden, Germany*

**Session 37: Innovative Display Manufacturing (Display Manufacturing)**

**Wednesday, May 21 / 3:30 – 4:40 pm / Room 403A**

**Chair:** *Bennet Chu, RiTdisplay Corp.*

**Co-Chair:** *Peter A. Smith, Honeywell*

- 37.1: **Novel Development of Large-Sized Electrowetting Display**  
*Wei-Yuan Cheng, Industrial Technology Research Institute, Hsinchu, Taiwan*
- 37.2: **Field-Sequential FLCs Fabricated by Ink-Jet Technology**  
*Masato Okabe, Dai Nippon Printing Co., Ltd., Chiba, Japan*
- 37.3: **Low-Cost Manufacturing of Patterned Films with Nano-Precision**  
*Zhilian Zhou, Liquidia Technologies, Inc., Durham, NC, USA*
- 37.4: **Late-News Paper:** **Integration of Carbon-Nanotube Transparent Electrodes into Display Applications**  
*Young Bae Park, Unidym Inc., Menlo Park, CA, USA*

**Session 38: Systems on Glass (Display Electronics)**

**Wednesday, May 21 / 3:30 – 4:40 pm / Room 408A**

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

**Co-Chair:** *Tae Sung Kim, Marvel Semiconductor*

- 38.1: **A Novel Two-Stage Analog Amplifier with Self-Compensated Current Loads Using LTPS TFTs for Flat-Panel Displays**  
*Kyoung-Ho Lim, Hanyang University, Seoul, Korea*
- 38.2: **High-Efficiency P-Type-Only Cross-Coupled DC-DC Converter Using LTPS TFTs for Mobile Display Applications**  
*Joong-Sun Yoon, Hanyang University, Seoul, Korea*
- 38.3: **All-Digital Phase-Locked Loop with Low-Temperature Poly-Si TFTs for System-on-Glass**  
*Jinyong Choi, Hanyang University, Seoul, Korea*
- 38.4: **Late-News Paper:** **A New Low-Power Driving Method for High-Resolution Mobile IPS Panels**  
*Naoki Takada, Hitachi Ltd., Yokohama-shi, Kanagawa-ken, Japan*

**Session 39: Transflective LCDs II (Liquid-Crystal Technology)**

**Wednesday, May 21 / 3:30 – 4:50 pm / Room 502**

**Chair:** *Yukito Saitoh, FUJIFILM Corp.*

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

- 39.1: **Invited Paper:** **Fabrication of Antireflection Coatings Using the Layer-by-Layer Self-Assembly Technique**  
*Lei Zhai, University of Central Florida, Orlando, FL, USA*
- 39.2: **Distinguished Paper:** **Novel Single-Gap TRLCD with Highly Reflective Image Quality**  
*Shih-Chia Hsu, AU Optonics Corp., Hsinchu, Taiwan*
- 39.3: **Wide-View Transflective LCD Using Fringe-Field-Switching Mode**  
*Hyang Yul Kim, University of Central Florida, Orlando, FL, USA*
- 39.4: **Liquid-Crystal Etalon Device for Reflective Display**  
*Enkh Amagalan Dorjgotov, Kent State University, Kent, OH, USA*

**Session 40: Nano-Particle Doped LCDs (Liquid-Crystal Technology)**

**Thursday, May 22 / 9:00 – 10:00 am / Concourse Hall 151**

**Chair:** *Shohei Naemura, Merck, Ltd.*

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

- 40.1: **Modification of Physical Properties of Liquid Crystals by Doping Nanoparticles of Inorganic Materials Producing the Reduction of Operating Voltage and Response Times of LCDs**  
*Shunsuke Kobayashi, Tokyo University of Science and Technology, Yamaguchi, Japan*
- 40.2: **Invited Paper:** **Nano-Structured Polymers for Alignment Layers in LCDs**  
*Lachezar Komitov, Göteborg University, Gothenburg, Sweden*
- 40.3: **Novel Anchoring Stabilization Method for High-Temperature Storage in Cholesteric-Liquid-Crystal Microcapsules Using Nano-Particles Deposited on the Shell**  
*Naoki Hiji, Fuji Xerox Co. Ltd., Kanagawa, Japan*

**Session 41: OLED Materials I (OLEDs)**

**Thursday, May 22 / 9:00 – 10:20 am / Concourse Hall 152**

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

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

- 41.1: **Invited Paper:** Molecular Design of Organic Semiconductors Aiming for High-Performance OLED, OFET, and Organic Laser Diode  
Chihaya Adachi, Chitose Institute of Science & Technology, Hokkaido, Japan
- 41.2: **Invited Paper:** Small Molecules with Ambipolar Transporting Properties for OLEDs with Simplified Structures  
Yong Qiu, Tsinghua University, Beijing, China
- 41.3: **Charge Carriers and Triplets in OLED Devices Studied by Electrically Detected Magnetic Resonance**  
Thomas Pawlik, Eastman Kodak Co., Rochester, NY, USA
- 41.4: **Role of Triplet-Triplet Annihilation in Highly Efficient Fluorescent Devices**  
Denis Kondakov, Eastman Kodak Co., Rochester, NY, USA

**Session 42: Oxide TFTs (Active-Matrix Devices)**

**Thursday, May 22 / 9:00 – 10:20 am / Petree Hall**

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

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

- 42.1: **Invited Paper:** Improved Amorphous In-Ga-Zn-O TFTs  
Ryo Hayashi, Canon Research Center, Tokyo, Japan
- 42.2: **The World's Largest (15-in.) XGA LCD Panel Using IGZO Oxide TFTs**  
Je-Hun Lee, Samsung Electronics Co., Ltd., Youngin, Korea
- 42.3: **Transparent ZnO TFT for the Application of High-Aperture-Ratio Bottom-Emitting AMOLED Display**  
Sang-Hee Park, ETRI, Daejeon, Korea
- 42.4: **Late-News Paper:** 4-in. QVGA AMOLED Driven by the Threshold-Voltage-Controlled Amorphous GIZO ( $\text{Ga}_2\text{O}_3\text{-In}_2\text{O}_3\text{-ZnO}$ ) TFT  
Kyoung-Seok Son, Samsung Advanced Institute of Technology, Yongin-Si, Korea

**Session 43: Display Manufacturing: Printing & Coating Processes (Display Manufacturing)**

**Thursday, May 22 / 9:00 – 10:20 am / Room 403A**

**Chair:** Greg Gibson, FAS Technologies, LLC

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

- 43.1: **Distinguished Paper:** Design Parameters of Roll-Printing Process for TFT-LCD Fabrication  
Youn-Gyoung Chang, LG.Philips LCD, Kyunggi-do, Korea
- 43.2: **Color Plastic Bistable Nematic Display Fabricated by Imprint and Ink-Jet Technology**  
John Rudin, Hewlett Packard Labs, Avon, UK
- 43.3: **Slot-Die Coating for OLED Displays**  
Tami Faircloth, Dupont Displays, Inc., Santa Barbara, CA, USA
- 43.4: **Enhancement of Roll-Printing Accuracy for TFT-LCDs**  
Seung-Hee Nam, LG.Philips LCD, Kyunggi-do, Korea

**Session 44: Novel Devices (Display Systems)**

**Thursday, May 22 / 9:00 – 10:30 am / Room 403B**

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

**Co-Chair:** Wei Chen, Apple, Inc.

- 44.1: **Invited Paper:** Electrowetting-Based Information Displays  
Rob Hayes, Liquavista, Shatin, Hong Kong
- 44.2: **Novel Front-Light System Using Fine-Pitch-Patterned OLED**  
Norio Koma, Sanyo Epson Imaging Devices Corp., Gifu, Japan
- 44.3: **A Liquid-Crystal Lens with Non-Uniform Anchoring Energy**  
Sergiy Valyukh, Center for Display Research, Kowloon, Hong Kong
- 44.4: **Invited Paper:** Orgacon: The Organic Alternative to ITO  
Frank Louwet, Agfa Gevaert NV, Mortsel, Belgium
- 44.5: **Late-News Paper:** All-Organic, Transparent Up-Conversion Displays with Tailored Excitation and Emission Wavelengths  
Tzenka Miteva, SONY Deutschland GmbH, Stuttgart, Germany

**Session 45: Display Interfaces (Display Electronics)**

**Thursday, May 22 / 9:00 – 10:20 am / Room 408A**

**Chair:** Richard McCartney, National Semiconductor Corp.

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

- 45.1: **Embedded Data-Line Differential Signaling (EDDS): A Novel Interface for Large-Sized TFT-LCDs**  
Wen-Chi Lin, Novatek Microelectronics, Hsinchu, Taiwan
- 45.2: **DisplayPort: The Emerging Converged Digital Display Interface Technology and Implementation in Mobile Computing Platforms**  
Achin Bhowmik, Intel Corp., Santa Clara, CA, USA
- 45.3: **Cost-Effective 60-Hz FHD LCD with 800-Mbps AiPi Technology**

- Hyungsik Nam, Samsung Electronics Co., Ltd., Choongchungnam, Korea*  
45.4: **High-Frequency LVDS Interface for FHD 120-Hz LCD TV**  
*Hyun-Gi Jung, LG.Philips LCD, Kyunggi-do, Korea*

**Session 46: Electronic Paper I (Liquid-Crystal Technology)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Concourse Hall 151**

**Chair:** *Paul Drzaic, Unidym Corp.*

**Co-Chair:** *Richard McCartney, National Semiconductor Corp.*

- 46.1: **Invited Paper: Novel Design for Full-Color Electronic Paper**  
*K.-M. H. Lenssen, Royal Philips, Eindhoven, The Netherlands*
- 46.2: **Real-Time Pen Tracking on Electronic-Paper Displays**  
*Guotong Feng, Ricoh Innovations, Inc., Menlo Park, CA, USA*
- 46.3: **High-Performance Active-Matrix Electrophoretic-Display Controller**  
*Yun Shon Low, Epson, Richmond, BC, Canada*
- 46.4: **Ghosting Reduction Using Digital Halftoning for Electrophoretic Displays**  
*Guotong Feng, Ricoh Innovations, Inc., Menlo Park, CA, USA*

**Session 47: OLED Materials II (OLEDs)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Concourse Hall 152**

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

**Co-Chair:** *Lee-Mi Do, ETRI*

- 47.1: **Invited Paper: Charge Transporters for OLEDs: Strategies and Performance**  
*Poopathy Kathirgamanathan, OLED-T Ltd., Middlesex, UK*
- 47.2: **Luminescence Quenching in Blue-Fluorescent OLEDs**  
*Ralph Young, Eastman Kodak Co., Rochester, NY, USA*
- 47.3: **Highly Efficient Fluorescent Deep Blue Dopant for “Super Top Emission” Device**  
*Hitoshi Kuma, Idemitsu Kosan Co., Ltd., Chiba, Japan*
- 47.4: **Blue-Phosphorescent OLED Stability Analysis**  
*Brian D'Andrade, Universal Display Corp., Ewing, NJ, USA*

**Session 48: Active-Matrix Display Sensors (Active-Matrix Devices)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Petree Hall**

**Chair:** *Fujio Okumura, NEC Corp.*

**Co-Chair:** *Norbert Fruehauf, University of Stuttgart*

- 48.1: **A New Monolithic Poly-Si Ambient Light-Sensor System with Wide Dynamic Range for Active-Matrix Displays by Employing an Adaptive Sensitivity Control**  
*Hyun-Sang Park, Seoul National University, Seoul, Korea*
- 48.2: **Display Architecture Suitable for Multiple Ambient Light-Sensor Integration Using LTPS Technology**  
*Takashi Nakamura, Toshiba Matsushita Display Technology Co., Ltd., Saitama, Japan*
- 48.3: **A 2-in. LTPS AMOLED with Embedded Lateral p-i-n Photodiode Sensors**  
*Jin Jang, Kyung Hee University, Seoul, Korea*
- 48.4: **Sensor-Embedded Electrophoretic Display Using Organic TFTs on Plastic**  
*Jin Jang, Kyung Hee University, Seoul, Korea*

**Session 49: Laser Manufacturing Processes (Display Manufacturing)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Room 403A**

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

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

- 49.1: **Invited Paper: Laser-Induced Full-Body Cleavage of Glass for FPDs**  
*Kojiro Karube, LEMI, Co., Ltd., Kanagawa, Japan*
- 49.2: **Innovative Laser Patterning of Black Matrix for LCD Manufacture**  
*Paul Harrison, Powerlase Ltd., Crawley, UK*
- 49.3: **Mechanism and Advanced Application of Rapid Laser Process on SnO<sub>2</sub>-System Thin Films for FPD Manufacture**  
*Reo Usui, Osaka University, Osaka, Japan*
- 49.4: **Direct-Imaging System by Using a UV Pulse Laser and Small Variable-Aperture Masks for Color-Filter Fabrication**  
*Yukihide Shigeno, Dainippon Screen Mfg. Co., Ltd., Shiga, Japan*

**Session 50: 3-D Integral Imaging and Autostereoscopic Displays (Display Systems)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Room 403B**

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

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

- 50.1: **Invited Paper: Sample Application Using Features of Integral Videography**  
*Michio Oikawa, Hitachi, Ltd., Kawasaki, Japan*
- 50.2: **Projection-Type Integral Imaging System Using Convex Mirror Array**  
*Sung-Wook Min, Kyung Hee University, Seoul, Korea*

- 50.3: **Arbitrary View Generation in Perspective and Orthographic Projection Geometry Using Lens Array**  
*Jae-Hyeung Park, Chungbuk National University, Chungbuk-do, Korea*
- 50.4: **High-Resolution Autostereoscopic 3-D Display with Proximity Projector Array**  
*Tzu-Hui Hsu, National Tsing Hua University, Hsinchu, Taiwan*

**Session 51: LED Backlight Driving (*Display Electronics*)**

**Thursday, May 22 / 10:40 am – 12:00 pm / Room 408A**

**Chair:** *Tae Sung Kim, Marvel Semiconductor*

**Co-Chair:** *David A. Eccles, Eccles Engineering*

- 51.1: **A Real-Time Image Compensation for High-Dynamic-Range LCDs**  
*Lin Yao Liao, National Chiao Tung University, Hsinchu, Taiwan*
- 51.2: **Delta-Color-Adjustment (DCA) Method for Color-Controlled Backlight of High-Dynamic-Range LCD TVs**  
*Guo Zhen Wang, National Chiao Tung University, Hsinchu, Taiwan*
- 51.3: **Driving a Adaptive Local Dimming Backlight for LCD-TV Systems**  
*Hendriek Groot Hulze, NXP – Research, Eindhoven, The Netherlands*
- 51.4: **Color Gamut and Contrast Enhancement for Mobile-Phone Displays**  
*Chih-Chang Lai, Wintek Corp., Taichung, Taiwan*

**Session 52: Color (*Applied Vision*)**

**Thursday, May 22 / 10:40 am – 12:20 pm / Room 408B**

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

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

- 52.1: **Invited Paper: High, Wide, and Deep: Displayed Image Color Appearance and Perception**  
*Mark Fairchild, Rochester Institute of Technology, Rochester, NY, USA*
- 52.2: **Display with Arbitrary Primary Spectra**  
*Johan Bergquist, Nokia Japan Co., Ltd., Tokyo, Japan*
- 52.3: **Primary Selection for the Displays with RGB-LED Primaries Considering the Primary Optical Power and Color Gamut**  
*Senfar Wen, Chung Hua University, Hsinchu, Taiwan*
- 52.4: **Distinguished Paper: RGB-to-RGB Conversion for OLED Displays**  
*Michael Miller, Eastman Kodak Co., Rochester, NY, USA*
- 52.5: **Effect of Color-Gamut Volume in Display on Image Preference**  
*Masato Sakurai, Sony Corp., Tokyo, Japan*

**Session 53: Electronic Paper II (*Liquid-Crystal Technology*)**

**Thursday, May 22 / 1:30 – 2:50 pm / Concourse Hall 151**

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

**Co-Chair:** *Deng-Ke Yang, Kent State University*

- 53.1: **Invited Paper: Recent Advances in Tiled Cholesteric Billboard Displays**  
*David Coates, Magink Display Technologies, Oxford, UK*
- 53.2: **Recent Improvements of Droplet-Driven Electrowetting Displays**  
*Karlheinz Blankenbach, University of Pforzheim, Pforzheim, Germany*
- 53.3: **Flexible Color Cholesteric LCD with Single-Layer Structure**  
*Yuang-Chang Liao, Industrial Technology Research Institute, Hsinchu, Taiwan*
- 53.4: **Novel Pulsed Drive Scheme for Improved Gray-Level Uniformity of Large-Area Cholesteric Displays**  
*Duane Marhefka, Kent Displays, Inc., Kent, OH, USA*

**Session 54: Tandem OLEDs (*OLEDs*)**

**Thursday, May 22 / 1:30 – 2:50 pm / Concourse Hall 152**

**Chair:** *Webster E. Howard, Howard Consulting*

**Co-Chair:** *Tariq A. Ali, e-Magin Corp.*

- 54.1: **Novel Approach to Stabilize Blue OLEDs and Fabrication of High-Efficiency Tandem White OLEDs for Large-Area-Display Applications**  
*Tukaram Hatwar, Eastman Kodak Co., Rochester, NY, USA*
- 54.2: **Tandem White OLEDs Combining Fluorescent and Phosphorescent Emission**  
*Liang Sheng Liao, Eastman Kodak Co., Rochester, NY, USA*
- 54.3: **Distinguished Paper: White Stacked OLED with 35 lm/W and a Lifetime of 100,000 hours at 1000 cd/m<sup>2</sup> for Display and Lighting Applications**  
*Jan Birnstock, Novald AG, Dresden, Germany*
- 54.4: **Highly Efficient and Wide-Color-Gamut White OLED Architecture for Display Application**  
*Sunghun Lee, Samsung Advanced Institute of Technology, Youngin, Korea*

**Session 55: Integrated AMLCDs (*Active-Matrix Devices*)**

**Thursday, May 22 / 1:30 – 2:50 pm / Petree Hall**

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

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

- 55.1: **An Inner Touch-Screen-Panel-Embedded 12.1-in. a-Si:H TFT-LCD**  
*Bong-Hyun You, Samsung Electronics Co., Ltd., Choongchungnam, Korea*
- 55.2: **Integrated Active-Matrix Capacitive Sensors for Touch-Panel LTPS TFT-LCDs**  
*Eiji Kanda, Seiko-Epson Corp., Nagano, Japan*
- 55.3: **Low-Cost 32-in. HDTV Panel Employing Gate IC Integration and Data-Line Reduction**  
*Min-Cheol Lee, Samsung Electronics Co., Ltd., Choongchungnam, Korea*
- 55.4: **Design of Integrated a-Si Gate Driver Circuits for Low Power Consumption**  
*Injae Hwang, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*

**Session 56: Advances in Projection Systems (Projection)**

**Thursday, May 22 / 1:30 – 2:50 pm / Room 403A**

**Chair:** *Sergei Yakovenko, Fidelica Microsystems*

**Co-Chair:** *Patrick Candry, BARCO NV*

- 56.1: **High-Frame-Rate High-Contrast Laser Grating Light-Valve Projection Display**  
*Hiroki Kikuchi, Sony Corp., Tokyo, Japan*
- 56.2: **Achromatic Space-Variant Retarder for Microdisplay-Based Projection Systems**  
*Khaled Sarayeddine, Optinvent, Rennes, France*
- 56.3: **A 65-in. Super-Slim Laser TV with Newly Developed Laser Light Sources**  
*Hiroaki Sugiura, Mitsubishi Electric Corp., Kyoto, Japan*
- 56.4: **Invited Paper: New-Technology Light Sources for Projection Displays**  
*Matthew Brennessoltz, Insight Media, Pleasantville, NY, USA*

**Session 57: Backlight Units (Display Systems)**

**Thursday, May 22, 2008 / 1:30 – 3:10 pm / Room 403B**

**Chair:** *Sungkyoo Lim, Dankook University*

**Co-Chair:** *Masaru Suzuki, Rohm and Haas Co.*

- 57.1: **UV-Excited Flat Lighting (UFL) System for LCD-TV Backlight Application**  
*Hsin-Tao Huang, National Chiao Tung University, Hsinchu, Taiwan*
- 57.2: **Optical Design of Phosphor Sheet Structure in LED Backlight System**  
*Yasushi Ito, Sony Electronics, Tokyo, Japan*
- 57.3: **Achieving Color Balance of a Large-Sized BLU Directly Lit by LEDs Capped with Customized Optical Lenses**  
*Paul C.-P. Chao, National Chiao Tung University, Hsinchu, Taiwan*
- 57.4: **Side-Lit Light-Guideless Flat LED Lighting Panel for Ultra-Uniform LCD Backlighting**  
*Ryuji Tsuchiya, Harison Toshiba Lighting Corp., Ehime, Japan*
- 57.5: **Improvement of Mura on Diagonal Direction for VA Monitor**  
*Yonghwan Shin, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*

**Session 58: Driver ICs (Display Electronics)**

**Thursday, May 22 / 1:30 – 2:50 pm / Room 408A**

**Chair:** *Hyoungsik Nam, Samsung Electronics Co., Ltd.*

**Co-Chair:** *Richard McCartney, National Semiconductor Corp.*

- 58.1: **A 720-Channel LCD Source Driver with a 12-bit Segmented R-C DAC**  
*Seongjong Yoo, Samsung Electronics Co., Yongin, Korea*
- 58.2: **A Novel Linear DAC Using a Capacitor-Coupled Adder for LCD Driver ICs**  
*Kengo Umeda, NEC Electronics, Kanagawa, Japan*
- 58.3: **Area- and Power-Efficient 10-bit Column Driver with Interpolating DAC and Push-Pull Amplifier for AMLCDs**  
*Hyung-Min Lee, KAIST, Daejeon, Korea*
- 58.4: **A 10-bit Column Driver with Split-DAC Architecture**  
*Suhwan Kim, Seoul National University, Seoul, Korea*

**Session 59: High Dynamic Range (Applied Vision)**

**Thursday, May 22 / 1:30 – 3:00 pm / Room 408B**

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

**Co-Chair:** *James Larimer, ImageMetrics*

- 59.1: **Invited Paper: A Display Simulation Toolbox for Image-Quality Evaluation**  
*Joyce Farrell, Stanford University, Stanford, CA, USA*
- 59.2: **Defining Dynamic Range**  
*Greg Ward, Dolby Canada, Albany, CA, USA*
- 59.3: **Temporal Filtering in LCD Backlight Modulation**  
*Louis Kerofsky, Sharp Laboratories of America, Camas, WA, USA*
- 59.4: **Comparing the Effective Resolution of Various Subpixel Layouts**  
*Michiel Klompenhouwer, Philips Research Laboratories, Eindhoven, The Netherlands*
- 59.5: **Late-News Paper: Evaluation of the Sony G×L Prototype Laser Projector for Flight Simulation Applications**  
*Marc Winterbottom, Air Force Research Labs, Mesa, AZ, USA*

## Poster Session

Thursday, May 22 / 4:00 – 7:00 pm / Exhibit Hall B

### Active-Matrix Devices

- P.1: **Artificial Retina Using Thin-Film Devices**  
*Mutsumi Kimura, Ryukoku University, Shiga, Japan*
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- P.152: Field-Emission Properties of t-RNA Wrapped Carbon-Nanotube Emitters**  
*Woo-Sung Cho, Korea University, Seoul, Korea*
- P.153: Field-Emission Properties of Dual Emitter in Planar Gate Structure**  
*Sun-Hee Lee, Kumho Electric, Inc., Kyunggi-do, Korea*
- P.154: Optimized Field Emission of Multiwalled Carbon Nanotubes Using Spray Method**  
*Byeong-Kwon Ju, Korea University, Seoul, Korea*
- P.155: Enhanced Electron Emission with Robust CNTs Grown by Resist-Assisted Patterning Process**  
*Kyu Chang Park, Kyung Hee University, Seoul, Korea*

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##### Liquid-Crystal Alignment

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*Vladimir Chigrinov, Hong Kong University of Science & Technology, Kowloon, Hong Kong*
- P.157: Effect of the Preparation Condition on the LC Alignment on SiO<sub>2</sub> Inorganic Layer**  
*Byeong-Dae Choi, DGIST, Daegu, Korea*
- P.158: Recent Developments in Photo-Alignment Technology: Alignment Properties of Novel Azo Dye CD-1**  
*Gurumurthy Hegde, Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- P.159: Releasing Behavior of Image Sticking**  
*Yu-Chieh Chen, AU Optronics Corp., Hsinchu, Taiwan*
- P.160: Alignment of Liquid Crystal with Ink-Jet-Printed Polyimide for Flexible LCDs**  
*Jeoung-Yeon Hwang, Liquid Crystal Institute, Kent State University, Kent, OH, USA*
- P.161: Multi-Domain Vertical Alignment of Liquid Crystal by Ion-Beam Exposure on Inorganic Film Surfaces**  
*Phil Kook Son, Pusan National University, Busan, Korea*
- P.162: Image Sticking of Photo-Reactive Polyimide Photo-Alignment Layer for LCDs**  
*Sang Gu Lee, Hongik University, Seoul, Korea*
- P.163: Mono-Domain Alignment of the SmC Liquid-Crystalline Phase for Analog Display Applications**  
*Mitya Reznikov, Kent State University, Kent, OH, USA*
- P.164: WITHDRAWN**
- P.254: *Late-News Poster*: Investigation into Stability of LC Alignment with Newly Developed PI-Based Photopolymer**  
*Soon Bum Kwon, Hoseo University, Asan, Chungnam, Korea*

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*Ryo Sakurai, Bridgestone Corp., Kodaira, Japan*
- P.166: An Electrophoretic LCD with Selective Reflection**  
*David Sikharulidze, Hewlett-Packard Laboratories, Bristol, UK*
- P.167: A 4.53-in. Electrochromic Display with Passive-Matrix Driving**  
*Jae-eun Jang, Samsung Advanced Institute of Technology, Yongin, Korea*
- P.168: Reflective-Type Polarizer-Free Flexible Displays Using Dye-Doped Nematic Liquid-Crystal Gels**  
*Yi Hsin Lin, National Chiao Tung University, Hsinchu, Taiwan*
- P.169: 5-in. Dual-Mode Flexible LCDs**  
*Kwan Sik Min, Hoseo University, Chungcheongnam-do, Korea*

- P.170: Color Writable Cholesteric LCD and Its Operational Principle**  
*Da-Wei Lee, DTC/ ITRI, Hsinchu, Taiwan*
- P.171: A Flexible Touch-Sensitive Writing Tablet**  
*Tod Schneider, Kent Displays, Inc., Kent, OH, USA*
- P.172: Power-Consumption Reductive Driving Method for Electrophoretic Displays**  
*Joo-Young Kim, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*

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*Jong-In Baek, Pusan National University, Busan, Korea*
- P.174: Stabilization of High-Brightness Relaxed Bend State and Investigation of Fast-Switching Symmetric H State in a Pi-Cell by Synchronized Illumination Technique**  
*Bo Ru Yang, National Chiao Tung University, Hsinchu, Taiwan*
- P.175: Carbon-Nanotube Doped Liquid-Crystal OCB Cells: Dielectric and Electro-Optical Properties**  
*Shin Ying Lu, Kent State University, Kent, OH, USA*
- P.255: *Late-News Poster*: Precise Measurement of LC Material Parameters for Ultra-High-Resolution Full-HD OCB-Mode FSC-LCD**  
*Tadashi Kishimoto, Research Institute for Advanced Liquid Crystal Technology, Hachinohe, Japan*
- P.256: *Late-News Poster*: Realization of Reliable Splay-to-Bend Transition for OCB-Mode LCD Based on Analyzing Behavior of Disclination**  
*Ken Kuboki, Aomori Support Center for Industrial Promotion, Hachinohe, Japan*
- P.257: *Late-News Poster*: Dynamic Simulation of Pi-Cell LCDs with Transverse Field**  
*Philip Bos, Kent State University, Kent, OH, USA*

#### LCD Addressing

- P.176: New High-Performance Algorithm for 2+2 Dynamic Drive Scheme for Cholesteric LCDs**  
*Andriy Rybalochka, Institute of Semiconductor Physics, NASU, Kyiv, Ukraine*
- P.177: Multi-Line Addressing of LCDs with Simple Diagonal Matrices**  
*Temkar Ruckmongathan, Raman Research Institute, Bangalore, India*
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#### Liquid-Crystal Simulation

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*Alexander Lazarev, Crysoptix KK, Tokyo, Japan*
- P.180: Enhancement of Predictability for Optical Properties of LC Simulator**  
*Sung Hoon Yang, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*

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*Tsung-Hsien Lin, National Sun Yat Sen University, Kaohsiung, Taiwan*
- P.182: Liquid-Crystal Switch Array Based on Total Internal Reflection**  
*Peizhi Xu, Hong Kong University of Science & Technology, Kowloon, Hong Kong*
- P.183: Refraction Control in Optical Films for LCDs**  
*Alexander Lazarev, Crysoptix KK, Tokyo, Japan*
- P.184: Optical Compensation for High Contrast Ratio in Reflective Horizontal-Switching LC Cell**  
*Gi-Dong Lee, Dong-A University, Busan, Korea*

#### Transflective Displays

- P.185: Single-Cell-Gap Single-Mode Transflective LCD with High Optical Efficiency**  
*Li Tan, Hong Kong University of Science & Technology, Kowloon, Hong Kong*
- P.186: High-Quality Patterned Retarder for Transflective LCDs**  
*Hiroshi Hasebe, Dai Nippon Ink & Chemicals, Inc., Saitama, Japan*
- P.187: Photoaligned Transflective LCD Using Low-Twisted-Nematic and Electricity Controlled Birefringence Modes**  
*Hin-Yu Mak, The Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- P.188: Optical Configuration of Transflective LCD for Dynamic Memory Operating Mode**  
*Chul Gyu Jhun, Hoseo University, Chungcheongnam-do, Korea*
- P.189: Fast-Response Transflective Display Using a Tight-Pitch Ferroelectric Liquid Crystal in a Single-Gap Configuration**  
*Dong Woo Kim, Seoul National University, Asan, Korea*
- P.190: Wide-Band Transflective LCD with a Single Cell Gap in a Patterned Vertically Aligned Mode**  
*Jae Hoon Kim, Hanyang University, Seoul, Korea*
- P.191: Reflective LCD Mode of Twisted-Nematic Liquid Crystal Designed for Low-Voltage Driving**  
*Jae Hoon Kim, Hanyang University, Seoul, Korea*
- P.192: Advanced Transflective Multi-Domain Vertical Aligned Liquid-Crystal Display (ATR-MVA LCD) with Micro Bump Technology**  
*Syuan Ling Yang, AU Optronics Corp., Hsinchu, Taiwan*
- P.193: Single-Gap and Single-Gamma Transflective Display Using Fringe-Field-Switching Mode**  
*Seung-Hee Lee, Chonbuk National University, Chonbuk-do, Korea*
- P.258: *Late-News Poster*: Analysis of Internal Reflectance in AFFS Plus Technology**  
*Jun-Baek Park, HYDIS, Ichon-si, Gyeonggi-do, Korea*

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*Ruibo Lu, University of Central Florida, Orlando, FL, USA*
- P.195: Enhanced Outdoor Readability in AFFS Plus Technology by Negative LC**  
*Suk Choi, BOE Hydis, Kyunggi-do, Korea*
- P.196: Vertically Aligned Nematic LCD with Double-Sided In-Plane Switching Using Positive Liquid-Crystal Materials**  
*Hun Ki Shin, Pusan National University, Busan, Korea*
- P.197: Improved Patterned VA Mode for Fast Response Time by Using Strong Fringe-Field Effect**  
*Gi-Dong Lee, Dong-A University, Busan, Korea*
- P.198: Azimuthally Continuous Nematic Domain Mode Using Electrode Structure with Circular Slit**  
*Jae Hoon Kim, Hanyang University, Seoul, Korea*
- P.199: Achromatic Reduction of Off-Axis Light Leakage in LCDs by Compensated-Phase-Retardation Film**  
*Young-Chol Yang, Kent State University, Kent, OH, USA*
- P.200: Effect of the Magnitude of Dielectric Anisotropy on the Light Efficiency of Fringe-Field-Switching Nematic Liquid-Crystal Cell**  
*Seung-Hee Lee, Chonbuk National University, Chonbuk-do, Korea*
- P.201: Chiral Hybrid IPS LC Mode for High Brightness and Contrast Ratio**  
*Jae Hoon Kim, Hanyang University, Seoul, Korea*
- P.202: High-Transmittance LC Pixel Design for Multi-View 3-D Mobile Display**  
*Wallen Mphopo, National Chiao Tung University, Hsinchu, Taiwan*

## OLEDs

- P.203: The Improvement of White OLED Performance**  
*Kazuki Nishimura, Idemitsu Kosan Co., Chiba, Japan*
- P.204: *Distinguished Paper*: A Near-Infrared Phosphorescent OLED for Day/Night Display**  
*Jason Brooks, Universal Display Corp., Ewing, NJ, USA*
- P.205: OLED Display Sharpness with Diffuser**  
*Ronald Cok, Eastman Kodak Co., Rochester, NY, USA*
- P.206: Improved OLEDs with Single Amibipolar Material for Hole-Transport and Electron-Transport Layers**  
*Mei-Fang Lin, Hong Kong Baptist University, Hong Kong, China*
- P.207: Novel Buffer Materials with High Work Function for Efficient and Stable OLEDs**  
*Dal Ho Huh, Cheil Industries, Ulwangi, Korea*
- P.208: Flexible OLEDs with Anodes Formed by Vapor-Phase Polymerization**  
*Peter Levermore, Imperial College London, London, UK*
- P.209: New Green-Phosphorescent Host Materials**  
*Woo Sik Jeon, Kyung Hee University, Seoul, Korea*
- P.210: Blue-to-Red Phosphorescence from Iridium Complexes and Their Applications in OLEDs**  
*Xiaofan Ren, Eastman Kodak Co., Rochester, NY, USA*
- P.211: High Quantum Efficiency of New Deep-Blue EML Materials for OLEDs**  
*Jong-Wook Park, Catholic University of Korea, Pucheon, Korea*
- P.212: Architecture Design for Efficient True-Blue Phosphorescent OLEDs**  
*Chung-Chia Chen, National Taiwan University, Taipei, Taiwan*
- P.213: Decomposable Precursors as Electron Injection Materials for High-Performance OLED Devices**  
*Lian Duan, Tsinghua University, Beijing, China*
- P.214: Ultra-Thin-Film Encapsulation for AMOLED Displays**  
*Younggu Lee, Samsung Advanced Institute of Technology, Yongin, Korea*
- P.215: Improved Carrier Transport into Wide-Bandgap Host for Low-Voltage High-Efficiency Blue PHOLEDs**  
*Meng-Ting Lee, Industrial Technology Research Institute, Hsinchu, Taiwan*
- P.216: Synthesis of Laterally Attached Side-Chain Liquid-Crystalline Poly(p-phenylene vinylene) Derivatives for the Application of Polarized Electroluminescence**  
*Chih-Nan Lo, National Chiao Tung University, Hsinchu, Taiwan*
- P.217: 120% Luminance Enhancement of OLED by Patterned Microlens Array**  
*Jiun-Haw Lee, National Taiwan University, Taipei, Taiwan*
- P.218: High-Efficiency White OLEDs Using Hybrid Spacer**  
*Ji Hoon Seo, Hongik University, Seoul, Korea*
- P.219: Color Stability of White-Light-Emitting Organic Electroluminescent Device Based on Three Phosphorescent Emission Peaks**  
*Tien-Shou Shieh, Industrial Technology Research Institute, Hsinchu, Taiwan*
- P.220: NPB-Based RGB Single-Layer OLEDs**  
*K. K. Tsung, Hong Kong Baptist University, Hong Kong, China*
- P.221: Enhancement of Electroluminescent Property of Inverted Top-Emitting OLEDs with Transparent AgO<sub>x</sub> by O<sub>2</sub> Plasma**  
*Jong-Lam Lee, Pohang University of Science and Technology, Kyunggi-do, Korea*
- P.222: Solution-Processed Red-Emission Oligofluorene Electrophosphorescent Diodes**  
*Juo-Hao Li, UCLA, Los Angeles, CA, USA*
- P.223: Enhanced Power Efficiency of Single-Layer White Triplet Polymer LEDs by Blending with Polymer Oxides**  
*Yung-Shiuan Chen, Hsinchu, Taiwan*
- P.224: Damage-Free Cathode Coating Process for OLEDs**  
*Shiva Prakash, DuPont Displays, Santa Barbara, CA, USA*
- P.225: Suppressed Efficiency Roll-Off in Phosphorescent OLEDs**

- Jun Yeob Lee, Dankook University, Yongin, Korea*
- P.226: New Tris Bipyridyl Derivative as Hole-Blocking and Electron-Transporting Materials for OLED Devices**  
*Musubu Ichikawa, Shinshu University, Nagano, Japan*
- P.227: Efficient Electron Injection in OLEDs Using Dipotassium Phthalate as an n-Type Dopant**  
*Meng Huan Ho, National Chiao Tung University, Hsinchu, Taiwan*
- P.228: Degradation of White-Light-Emitting OLEDs**  
*Woo Sung Jeon, Samsung Advanced Institute of Technology (SAIT), Kyunggi-do, Korea*
- P.229: MOVED TO 36.5**
- P.230: Novel Chemical-Electrical Polished Stainless-Steel Anode OLED with Long Lifetime at High Luminance for Flexible Lighting**  
*Xiao-Ming Yu, Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- P.231: Blade Coating for Multilayer Polymer LEDs**  
*Hsin-fei Meng, National Chiao Tung University, Hsinchu, Taiwan*
- P.248: *Late-News Poster*: High-Efficiency Deep-Blue OLED with a Novel Blue Dye in Low-Polarity Host**  
*Jwo-Huei Jou, National Tsing Hua University, Hsin-Chu, Taiwan*
- P.249: *Late-News Poster*: Collimated OLED Light Source with Patterned OLED and Microlens**  
*Sukekazu Aratani, Hitachi Research Lab, Hitachi-shi, Ibaraki-ken, Japan*

## Projection

- P.232: FLC Cell for Speckle-Noise Suppression**  
*Igor Kompanets, Lebedev Physical Institute of RAS, Moscow, Russia*
- P.233: Multimode DBR Laser Operation for Frequency-Doubled Green Lasers in Projection Displays**  
*Jacques Gollier, Corning Incorporated, Corning, NY, USA*
- P.234: Polarization Conversion Illumination System**  
*Shuang Chao Chung, Industrial Technology Research Institute, Hsinchu, Taiwan*
- P.235: Polarization Recovery System Using PBS Array Suitable for Light-Pipe-Based Systems**  
*Kenneth Li, Wavien, Inc., Valencia, CA, USA*
- P.236: LED Light Recycling with Recycling Collars**  
*George Ouyang, Wavien, Inc., Valencia, CA, USA*
- P.237: Measurement of the Picture Contrast Enhancement of Gray Projection Screens**  
*Michael Rudd, THK Ltd., San Rafael, CA, USA*
- P.238: Limits on a Bent Waveguide for a Wedge Display**  
*Danny Kong, University of Cambridge, Cambridge, UK*
- P.250: *Late-News Poster*: Low-Speckle Laser Projection with a Broad-Area VCSEL in the Incoherent Emission Regime**  
*Falko Riechert, Universität Karlsruhe (TH), Karlsruhe, Germany*
- P.251: *Late-News Poster*: Miniature Wide-Throw-Angle Scanning Fiber Projection Display**  
*Brian Schowengerdt, HIT Lab, University Of Washington, Seattle, WA, USA*

## Session 60: Electronic Paper III (*Liquid-Crystal Technology*)

**Friday, May 23 / 9:00 – 10:00 am / Concourse Hall 151**

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

**Co-Chair:** *Martin Schadt, MS Hightech Consulting*

- 60.1: Optical Rewritable Electronic Paper with Fluorescent Dye-Doped Liquid Crystal**  
*Alexander Muravsky, Hong Kong University of Science and Technology, Kowloon, Hong Kong*
- 60.2: Novel Optically Addressable Photochiral Displays**  
*Erica Montbach, Kent Displays, Inc., Kent, OH, USA*
- 60.3: High-Resolution Electronic-Paper Based on LED Print-Head Scanning Exposure**  
*Masahiro Sato, Fuji Xerox Co., Ltd., Kanagawa, Japan*
- 60.4: *Invited Paper*: Rollable Displays: A Technology Development Enabling Breakthrough Mobile Devices**  
*Edzer Huitema, Polymer Vision, Eindhoven, The Netherlands*

## Session 61: White OLEDs I (*OLEDs*)

**Friday, May 23 / 9:00 – 10:30 am / Concourse Hall 152**

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

**Co-Chair:** *Julie J. Brown, Universal Display Corp.*

- 61.1: *Invited Paper*: High-Performance OLEDs for Displays and General Lighting**  
*Junji Kido, Yamagata University, Yamagata, Japan*
- 61.2: Fluorescent White OLED Devices with Improved Light Extraction**  
*Yuan-Sheng Tyan, Eastman Kodak Co., Rochester, NY, USA*
- 61.3: A 3.0-in. 308-ppi WVGA AMOLED by Top-Emitting White OLED with Color Filter**  
*Sang Yeol Kim, Samsung Advanced Institute of Technology, Suwon, Korea*
- 61.4: WITHDRAWN**
- 61.5: *Late-News Paper*: Extremely Long-Lived White Phosphorescent OLEDs with Minimum Organic Materials**  
*Brian D'Andrade, Universal Display Corporation, Ewing, NJ, USA*

## Session 62: Novel AMLCDs (*Active-Matrix Devices*)

**Friday, May 23 / 9:00 – 10:20 am / Petree Hall**

**Chair:** *Feng-Yuan Gan, AU Optronics Corp.*

**Co-Chair:** *Nam Deog Kim, Samsung Electronics Co., Ltd.*

- 62.1: **Late-News Paper:** **FPC-Free LCD Panel with Capacitive Coupling for Transmission of Signal and Power**  
*Futoshi Furuta, Hitachi, Ltd., Tokyo, Japan*
- 62.2: **AMLCD with Carbon-Nanotube Pixel Electrodes**  
*Axel Schindler, Universitaet Stuttgart, Stuttgart, Germany*
- 62.3: **A Non-Rectangular Heart-Shaped SOG-LCD**  
*Yoshihiro Nonaka, NEC Corp., Kanagawa, Japan*
- 62.4: **Development of Zigzag TFT-Driven OCB for Field-Sequential-Color LCDs with High Aperture Ratio**  
*Chao-Hui Wu, HannStar Display Corp., Taoyuan, Taiwan*

### **Session 63: New Projection Light Sources (Projection)**

**Friday, May 23 / 9:00 – 10:30 am / Room 403A**

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

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

- 63.1: **Red Laser-Array Light Source for Mobile Projection Displays**  
*Michael Golub, Explay, Ltd., Herzliya, Israel*
- 63.2: **Distinguished Paper:** **Efficient and Compact Green Laser Incorporating Adaptive Optics for Wide Operating Temperature Range**  
*Vikram Bhatia, Corning Incorporated, Corning, NY, USA*
- 63.3: **GaN-Based 1-W Continuous-Wave Blue-Laser Diodes**  
*Takashi Miyoshi, Nichia Corp, Anan, Japan*
- 63.4: **Invited Paper:** **Development and Application Prospects of InGaN-Based Optoelectronic Devices Prepared in Non-Polar Orientations**  
*Hisashi Masui, University of California at Santa Barbara, Santa Barbara, CA, USA*
- 63.5: **Late-News Paper:** **Planar-Waveguide Green Laser for Laser TV**  
*Yoshihito Hirano, Mitsubishi Electric Corporation, Kamakura, Kanagawa, Japan*

### **Session 64: Local Dimming (Display Systems)**

**Friday, May 23 / 9:00 – 10:20 am / Room 403B**

**Chair:** *Masaru Suzuki, Rohm and Haas Company*

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

- 64.1: **High-Contrast Low-MPRT OCB-LCD with Dynamic Backlight Control Technology**  
*Shigesumi Araki, Toshiba Matsushita Display Technology Co., Ltd., Ishikawa, Japan*
- 64.2: **Spatio-Temporal Consistent Video Processing for Local Backlight Dimming**  
*Remco Muijs, Philips Research Europe, Eindhoven, The Netherlands*
- 64.3: **Super-Gaussian Light Spread Function for High-Dynamic-Range Displays**  
*Yu Kuo Cheng, National Chiao Tung University, Hsinchu, Taiwan*
- 64.4: **Smart Algorithms for Local-Dimming LED Backlight**  
*Dong-Min Yeo, Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*

### **Session 65: Image and Video Processing (Display Electronics)**

**Friday, May 23 / 9:00 – 10:20 am / Room 408A**

**Chair:** *Nikhil Balram, Marvell Semiconductor*

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

- 65.1: **Invited Paper:** **Image/Video Compression: A Display-Centric Viewpoint**  
*Vasudev Bhaskaran, Marvell Semiconductor, Inc., Sunnyvale, CA, USA*
- 65.2: **Video and Picture-Quality Enhancement for Mobile Display Systems**  
*Pierre De Greef, NXP Semiconductors, Eindhoven, The Netherlands*
- 65.3: **Next Generation of Frame-Rate-Conversion Algorithm**  
*Quang Dam Le, AMD, Markham, Ontario, Canada*
- 65.4: **Invited Paper:** **Key Human Visual System Components as Applied to Display Algorithms**  
*Scott Daly, Sharp Labs of America, Camas, WA, USA*

### **Session 66: Image Quality and Legibility (Applied Vision)**

**Friday, May 23 / 9:00 – 10:20 am / Room 408B**

**Chair:** *Jeffrey B. Mulligan, NASA Ames Research Center*

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

- 66.1: **Ambient-Light Control for Mobile Displays**  
*Stefan Swinkels, Philips Research Laboratories, Eindhoven, The Netherlands*
- 66.2: **An Approach for Achieving Ideal Readability on Electronic-Paper Extraction of Essential Disadvantages in Conventional Displays**  
*Makoto Omodani, Tokai University, Kanagawa, Japan*
- 66.3: **Visual Ergonomic Effects of Screen Gloss on LCDs**  
*Kjell Brunnström, Acreo AB, Kista, Sweden*

- 66.4: **Effects of Surface Treatment and Reflectance on Legibility and Visual Fatigue in Reflective-Type Displays**  
*Yu-Ting Lin, National Tsing Hua University, Hsinchu, Taiwan*

**Session 67: Electronic Paper IV (Liquid-Crystal Technology)**

**Friday, May 23 / 10:40 am – 12:00 pm / Concourse Hall 151**

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

**Co-Chair:** *Asad Kahn, Kent Displays, Inc.*

- 67.1: **Active-Matrix Electronic Paper with Silver Electrodeposition**  
*Noriyuki Kokeguchi, Konica Minolta Technology Center, Inc., Tokyo, Japan*
- 67.2: **Permanent Bistable Twisted-Nematic Displays Using Bi-Directional Alignment Surface**  
*Yuet-Wing Li, Hong Kong University of Science & Technology, Kowloon, Hong Kong*
- 67.3: **Electrophoretically Controlled Nematic LCD: Plastic Bistable Technology with Memorized Intrinsic Gray Scale**  
*David Sikharulidze, Hewlett-Packard Laboratories, Bristol, UK*
- 67.4: **Defect Loops in the Zenithal Bistable Display**  
*Sally Day, University College London, London, UK*

**Session 68: White OLEDs II (OLEDs)**

**Friday, May 23 / 10:40 am – 12:00 pm / Concourse Hall 152**

**Chair:** *Chin (Fred) H. Chen, National Chiao Tung University*

**Co-Chair:** *Reiji Hattori, Kyushu University*

- 68.1: **Invited Paper: Energy Transfer in Organic Phosphorescent Guest-Host Systems**  
*Shizuo Tokito, NHK, Tokyo, Japan*
- 68.2: **Achieving Wide-Color-Gamut with Microcavity-on-White OLED**  
*Changwoong Chu, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*
- 68.3: **High-Efficient All-Fluorescence White OLED with Double ETL and Its Analysis**  
*Mu Gyeom Kim, SAIT, Yongin, Korea*
- 68.4: **Microcavity Design of RGBW AMOLED for 100% Color Gamut**  
*Baek-Woon Lee, Samsung Electronics Co., Ltd., Kyunggi-do, Korea*

**Session 69: Novel TFTs (Active-Matrix Devices)**

**Friday, May 23 / 10:40 am – 12:00 pm / Petree Hall**

**Chair:** *Willem Den Boer, ScanVue Technologies LLC*

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

- 69.1: **Invited Paper: Time-Multiplexed Optical-Shutter (TMOS) Technology: Advantages and Advances**  
*Dan Van Ostrand, Uni-Pixel Displays, The Woodlands, TX, USA*
- 69.2: **New R2PAT Printing Method for TFT Electrode Fabrication Process**  
*Masanobu Tanaka, Sony Corp., Kanagawa, Japan*
- 69.3: **Transflective IPS-LCD with Improved Reflective Contrast Ratio**  
*Kenichi Mori, NEC LCD Technologies, Kanagawa, Japan*
- 69.4: **Invited Paper: SELAX Technology for Poly-Si TFTs Integrated with a-Si TFTs**  
*Takuo Kaitoh, Hitachi Displays, Ltd., Mobarra, Japan*

**Session 70: Emerging Portable Projection Systems (Projection)**

**Friday, May 23 / 10:40 am – 12:10 pm / Room 403A**

**Chair:** *Edward English, Jr., 3M Precision Optics, Inc.*

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

- 70.1: **LED-Illuminated Pico-Projector Architectures**  
*Mark Handschy, Displaytech, Inc., Longmont, CO, USA*
- 70.2: **Invited Paper: Holographic Laser Projection Technology**  
*Edward Buckley, Light Blue Optics, Ltd., Colorado Springs, CO, USA*
- 70.3: **Novel Single-Panel Projection Systems**  
*Yong-Jing Wang, Display Photonics, Inc., Valencia, CA, USA*
- 70.4: **Invited Paper: Light-Engine Design and Manufacturing Development in Projection System**  
*Roger Chen, Young Optics, Hsinchu, Taiwan*
- 70.5: **Late-News Paper: A Mobile Projection Engine with a Multi-layer Reflective Polarizer Based PBS**  
*Todd Rutherford, 3M Precision Optics, Cincinnati, OH, USA*

**Session 71: Field Sequential Color (Display Systems / Display Electronics)**

**Friday, May 23 / 10:40 am – 12:20 pm / Room 403B**

**Chair:** *Paul T. Breen, Jr., Applied Display Technology*

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

- 71.1: **Invited Paper: Field-Sequential-Color LCD TV Using Multi-Area Control Algorithm**  
*Wen-Chih Tai, Chungghwa Picture Tubes Ltd., Taoyuan, Taiwan*
- 71.2: **Gray-Level Redistribution in Field-Sequential-Color LCD Technique for Color-Breakup Reduction**  
*Chun-Ho Chen, National Chiao Tung University, Hsinchu, Taiwan*

- 71.3: **Field-Sequential-Color Notebook Using LED Scanning-Backlight System**  
*Chin-Young Lin, Chunghwa Picture Tubes, Ltd., Taoyuan, Taiwan*
- 71.4: **High-Efficiency and / or Low-Cost LED Backlight System for Color-Sequential Technique in Color- Filterless LCD System**  
*Ke-Hong Chen, National Chiao Tung University, Hsinchu, Taiwan*
- 71.5: **Stencil FSC Method for Color-Break-Up Suppression and Low Power Consumption in Field-Sequential LCDs**  
*Fang Cheng Lin, National Chiao Tung University, Hsinchu, Taiwan*

**Session 72: Color Processing and Gamma Control (*Display Electronics*)**

**Friday, May 23 / 10:40 am – 12:00 pm / Room 408A**

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

**Co-Chair:** *Nikhil Balram, Marvell Semiconductor*

- 72.1: **Invited Paper: PenTile RGBW Color Processing**  
*Candice Brown Elliott, Clairvoyante, Inc., Sebastopol, CA, USA*
- 72.2: **Invited Paper: Color Processing for Wide Color Gamut and Multi-Primary Displays**  
*Moshe Chorin, Genoa Color Technologies, Herzelia, Israel*
- 72.3: **Free Color Wash-Out Solution with Advanced Gamma-Control Technology**  
*Chao-Yuan Chen, AU Optronics Corp., Hsinchu, Taiwan*
- 72.4: **Novel LCD Driver ICs with Built-In Programmable RGB Independent Gamma Control**  
*Takashi Nose, NEC Electronics Corp., Kanagawa, Japan*

**Session 73: Medical Displays (*Applied Vision*)**

**Friday, May 23 / 10:40 am – 12:10 pm / Room 408B**

**Chair:** *Aldo Badano, CDRH / FDA*

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

- 73.1: **Invited Paper: Modeling the Effect of Image Noise on Perceptual Decisions**  
*Craig Abbey, University of California at Santa Barbara, Santa Barbara, CA, USA*
- 73.2: **A New Methodology for Clinical and Perceived Quality of Medical Displays**  
*Cedric Marchessoux, BARCO Medical Imaging Systems, Kortrijk, Belgium*
- 73.3: **Psycho-Visual Evaluation of CT Image Denoising Algorithms**  
*Ewout Vansteenkiste, Ghent University, Ghent, Belgium*
- 73.4: **Investigation of Crosstalk Characteristics in a Two-View 3-D Display**  
*Yan Tu, Southeast University, Nanjing, China*
- 73.5: **Late-News Paper: Model Observer Strategies for Assessment of Temporal Response**  
*Aldo Badano, CDRH/FDA, Silver Spring, MD, USA*