Session 12: Near-to-Eye and Head-Worn Display Applications

James E. Melzer Rockwell Collins Optronics


12.3: Ruggedized Color AMOLED and LED Backlight Illumination for Night Vision Applications
Benjamin Phipps, Claude Gaudette, Scott Young Warnco, Inc.

12.4: Interactive See-Through Augmented-Reality Smart-Display System
Peter Schreiber, Marcel Sieler Fraunhofer Institute for Applied Optics and Precision Engineering

Session 13: Flexible Displays

Hiroyuki Ohshima, Dai-Liang Ting Chimei Innolux Corp.

13.2: A Floating-Gate OTFT-Driven AMOLED Pixel Circuit for Variation and Degradation Compensation in Large-Sized Flexible Displays
Toshiaki Yoshihara Fujitsu Laboratories Ltd.

13.3: Improvement in Temperature Durability of Bendable Electronic Display Using Cholesteric Liquid Crystals (ChLCs)
Makoto Takamiya, Takao Someya, Takayasu Sakurai University of Tokyo

13.4: High-Resolution and Multi-Color R2R Flexible e-Papers
Tony Van Heugten, Dwight Duston eVision LLC

Session 14: 3D TV: LCD

Hiroyuki Ohshima, Kenji Okamoto, Koichi Miyachi Sharp Corporation

14.2: WITHDRAWN

14.3: Gray-Level Crosstalk and Temporal Synchronization of Different Shutter-Glasses 3D TVs
Pierre Boher, Thierry Leroux, Thibault Bignon ELDIM

14.4: Polarizer Glasses Type 3-D TVs Having High Image Quality with Active Retarder 3-D Technology
Peter T. Kazlas, Jonathan S. Steckel OD Vision, Inc.

14.5: Late-News Paper: Comparisons Between a Liquid Crystal Refractive Lens and a Diffraction Lens for 3D Displays
Lu Lu, Lei Shi, Phillip J. Bos Kent State University Tony Van Heugten, Dwight Duston eVision LLC
Table of Contents

Session 15: AMOLEDs and AMLCDs

15.1: **Invited Paper:** Super Grain Silicon Technology for AMOLED TV Applications .................................................................................................................. 175
  Ki-Yong Lee Samsung Mobile Display Co., Ltd.

15.2: Green Laser Spherical Solidification (G-SLS) Process for AMOLED Applications ............................................................................................... 179
  Minhwan Choi, Seong Hyun Jin, Se Hun Park, Jae Hwan Oh, Young Jin Chang, Won-Kyu Lee, Jae Beom Choi, Hye Dong Kim, Sang Soo Kim Samsung Mobile Display Co., Ltd.

15.3: Smart Power-Saving Driving Scheme for AMOLEDs Using Dynamic Power Rail Control ..................................................................................... 193
  Sang-Nyeoon Han, Baek-woon Lee, In-ihwan Ji, Si-duk Sung, Alexander Arkhipov, Sang Soo Kim Samsung Mobile Display Co., Ltd.

15.4: A Novel High Speed Integrated Gate Driver Circuit Using a-Si TFT for 240-Hz FHD LCD TVs ............................................................................. 186
  Hong-Jae Shin, Mi-Young Son, Byung-Hoon Kim, Yong-Ho Kim, Chung-Ah Lee, Kwang-Soo Kim, Jung-Hoon Choi, Jeom-Jae Kim, Chang-Ho Oh, In-Byeong Kang LG Display Co. Ltd.

Session 16: Flexible Backplanes

16.1: **Distinguished Paper:** Reliable Electrophoretic Display with Amorphous-Silicon Gate Driver Circuit Integrated ........................................... 190
  Chia-Tien Peng, Wei-Ming Huang AU Optronics Corp.

16.2: World-Best Performance LTPS TFTs with Robust Bending Properties on AMOLED Displays .............................................................................. 194
  Moojin Kim, Junhyuk Cheon, Jaeseob Lee, Yonghwan Park, Sungguk An, Taewoong Kim, Dongun Jin, Soonkeun Min, CheolHyu Yo, Sunghul Kim Samsung Mobile Display Co., Ltd.,
  Jin-Jang Kyung Hse University

16.3: A 13-in. Flexible Color EFD Driven by Low-Temperature a-Si TFTs ....................................................................................................................... 198
  Keiichi Kamatani, Akihito Nishikawa, Kenta Masuda, Yuichi Kato, Takashi Maruyama, Masato Suzuki, Ryo-ichi Yasuda, Akira Yumoto, Takahiro Kanemoto, Tetsuo Urabe Sony Corporation

16.4: Low-Temperature Fabrication of Flexible AMOLED Displays Using Oxide TFTs with Polymer Gate Insulators ........................................ 202
  Mitsuuru Nakata, Hiroto Sato, Yoshiaki Nakajima, Yoshihide Fujikawa, Tatsuhiko Matsumoto, Shuichi Haga, Takehiro Nakatsue, Sony Corporation

Session 17: Blue-Phase LC II

17.1: **Invited Paper:** Optically Isotropic Liquid Crystals for Electro-optical Devices ............................................................................................... 206
  Yasuhiro Hasegawa, Shin-ichi Yamamoto, Takafumi Kinoshita, Kohki Sago
  Chisso Petrochemical Co. Ltd.

17.2: Polymer Electro-optic Properties of Blue-Phase Liquid Crystals ...................................................................................................................... 210
  Jin Yan, Shin-Tson Wu University of Central Florida

17.3: Hysteresis and Residual Birefringence Free Polymer-stabilized Blue Phase Liquid Crystal ................................................................. 213
  Chun-Yuan Fan, Chun-Ta Wang, Tsung-Hsien Lin National Sun Yat-Sen University

Session 18: Colors of Vision

18.1: **Invited Paper:** The Effect of Surround on Color and Image Appearance ................................................................................................. 216
  Ming Romnier Luo University of Leeds

18.2: **Distinguished Paper:** Appropriate Luminance of LCD-TV Screens under Actual Viewing Conditions at Home ....................................................... 221
  Tatsuhiko Matsumoto, Shuichi Haga, Takehiro Nakatsue
  Sony Corporation

18.3: Rendering Digital Cinema and Broadcast TV Content to Wide Gamut Display Media .......................................................................................... 225
  Rodney L. Heckaman Rochester Institute of Technology
  James Sullivan Entertainment Experience, LLC

Session 19: Large-Area, Head-Up, and Rugged Display Applications

19.1: A Novel Electrowetting-Based Display for Future Smart Window Application ........................................................................................................... 232
  Industrial Technology Research Institute

19.2: Ambient Environment Reactive Displays ......................................................................................................................................................... 236
  Chang Yuan Sharp Laboratories of America

19.3: **Invited Paper:** Creative Integration of Christie MicroTiles in Tiled Display Applications ................................................................................. 240
  Delia Zsivanovx, Michael Perkins
  Christie Digital Systems Canada Inc.

19.4: Novel Depth Perception Controllable Method of WARP Under Real Space Conditions ..................................................................................... 244
  Takashi Sasaki, Aia Hotta, Akihiko Moriya, Takahiro Murata, Haruhiko Okumura, Kazuo Horiiuchi, Niohtada Okada, Kenji Toyagi, Yoshitsuna Nozawa, Osumo Nagahara Toshiba Corporation

19.5: Unique Approach for Replacement Displays in Military Systems ....................................................................................................................... 248
  Frank J. Evagues III Secure Communication Systems, Inc.
  Frank J. Evagues IV, Farrah K. Evagues
  Tactical Displays, Inc.
  Lawrence E. Tannas Jr. Tannas Electronics Displays, Inc.

Session 20: Green Display Applications

20.1: A Method for Color Break-Up Suppression in a Color Sequential Display ........................................................................................................... 251
  Kai-Ting Hu, Tzu-Pin Lin, Chi-Chung Tsai, Wen-Chih Tal, Kuang-Hung Chien Chungwta Picture Tubes, Ltd.

20.2: Efficiency Improvement of Photovoltaic Device-Integrated Organic Light Emitting Diode by Applying a Distributed Bragg Reflector .............................................................................................................................. 255
  Wei-En Hsu, HoangYan Lin National Taiwan University

20.3: All-In-One Monitor Capable of Power-over-Ethernet or USB ............................................................................................................................... 259
  Shannon Stieken, Fedja Kecman, James Thielens, Garry Dui 3M Company

20.4: **Distinguished Paper:** Optimizing the Brightness of Reflective Displays in Mobile Applications ............................................................................. 261
  Ian Bla, Hamid Tavakoli, Evgeni Polisak, Kebin Li, Thomas Fiske, Jennifer Gill, Russel A. Martin
  Qualcomm MEMS Technologies, Inc.

Session 21: AMOLED Driving

21.1: **Distinguished Paper:** 120 Hz 3D Driving for AMOLED with Interleaved Scan and Emission Operation .................................................................... 264
  Bae-woon Lee, Sangmyeon Han, Si-duk Sung, In-hwan Ji, Kwang-sub Shin, Brian H. Berkeley, Sang Soo Kim Samsung Mobile Display Co., Ltd.
Table of Contents

21.2: Driving Method for a 2D-3D Switchable AMOLED Display Using Progressive or Simultaneous Emission

22.3: Invited Paper: New Materials for Polymer-Stabilized Liquid Crystal Displays

22.3: Invited Paper: Flexible Polymer Electrets for Flexible Electronics

21.2: Driving Method for a 2D-3D Switchable AMOLED Display

24.2: Subjective and Objective Assessments of Color Break-Up on Field Sequential Color Display Devices

Session 22: Integrated Flexible Electronics

22.1: Invited Paper: Stretchable and Foldable Displays using Organic Transistors with High Mechanical Stability

22.2: Invited Paper: Flexible Polymer Electrets for Flexible High-Performance, Paper-Like Speakers, and Touch Panel Applications

22.3: Flexible Top-gate Amorphous InGaZnO TFTs Array for AMOLED Applications

22.4: Flexible Electrochromic Display Driven by Solution-Processed OTFTs

Session 23: Blue-Phase LC III

23.1: Invited Paper: New Materials for Polymer-Stabilized Blue Phase

23.1: A Vertical-Field-Driven Polymer-Stabilized Blue Phase Liquid Crystal Displays

23.2: Q-Tensor-Based Numerical Modeling of Blue-Phase LCDs

23.3: A Vertical-Field-Driven Polymer-Stabilized Blue Phase Liquid Crystal Displays

Session 24: Visual Perception

24.1: Measuring the Perceived Contrast of Natural Images

24.2: Estimating the Perceptual Limits of Mobile Displays

24.3: Human-Body Swing Affects the Visibility of Scrolled Characters with Direction Dependency

24.4: Subjective and Objective Assessments of Color Break-Up on Field Sequential Color Display Devices

Session 25: Digital Cinema

25.1: Interference Filter System for High-Brightness and Natural-Color Stereoscopic Imaging


25.3: LED Array with Recycling for High-Power Projector Applications

25.4: A Laser-Based Digital Cinema Projector

Session 26: Panel-Driving Technology


26.2: Distinguished Student Paper: A 10-bit Compact DAC Architecture for Large-Scale AMOLED Displays

26.3: Design of a Low Power Consumption a-IGZO TFT-based Vcom Driver Circuit with Long-Term Reliability

26.4: Novel Driving and Panel Design of Frame Inversion Methods and Control Electronics

26.5: Block-Wise Luminance Control Algorithm for AMOLED Displays and High Resolution LCD TV Panel

Session 27: 3D TV: OLED

27.1: Integrated pMOS Gate Driver for a 3D AMOLED Display

27.2: 31-inch FHD AMOLED 3-D TV using Emission-Switch Control Method

27.3: 1.2 Gbps GDDR3 Physical Layer for 3D AMOLED TV

27.4: Distinguished Student Paper: Simultaneous Programming and Emission Driving Using External Compensation Method for 3D AMOLED Displays

vii
Table of Contents

38.4: Full-Color Patterning of Quantum Dot (QD) Light-Emitting
Diodes using QD Transplanting Techniques .......................... 526
Hyunduck Cho, Changhee Lee Seoul National University
Jeonghun Kwak Dong-A University
Dong-Myung Shin Hongik University
Wan Ki Bae, Jaehoon Lim, Kookheon Char,
Seonghun Lee Seoul National University

38.5L: Late-News Paper: PVD SiO2 for Metal-Oxide TFT
Application ............................................................... 529
Oliver Graw, Evelyn Scheer, Anke Hellmich,
Marcus Bender PVD Display - Applied Materials

38.6L: Late-News Paper: Advanced Coatable Polarizer
Technology by Using Novel Liquid Crystalline Materials
and Organic Dyes ....................................................... 532
Su Hyun Park, Sang-Wook Lee, Byoung Har Hwang,
Jung-Min Lee, Wook-Sung Kim, Woo-Sup Shin,
Mike Jun, Yong-Kee Hwang LG Display Co., Ltd.

Session 39: Pico-Projection

39.1: Distinguished Paper: Laser+LCOS:
Technology Revolution .................................................. 536
Karl M. Guttag, Shawn Hurley, Bill Mei Syndiant Inc.

39.2: Polarization Conversion System Using a Polymer
Polarization Grating ..................................................... 540
Eunseong Seo, Hong Cheol Kee, Young Kim,
Seungun Jeong, Hyunho Choi, Sanghun Lee,
Jihwan Kim, Ravi K. Jomanduri
North Carolina State University
Michael J. Escuti ImagineOptix Corporation

39.3: Single Packaged RGB LEDs with Recycling for Pocket
and Pico-Projectors ...................................................... 544
Kenneth Li Wavien, Inc.

39.4: A Metal-Based High-Resonant-Frequency Optical
Scanner with a Moving-Magnet Actuator
for Non-Resonant Large-Angle Scanning ............................. 547
Nobuaki Takanashi, Takeshi Honda, Osamu Ishibashi,
Fujio Okumura NEC Corporation

Session 40: Interface Technologies
for Display

40.1: Invited Paper: DisplayPort® 1.2, Embedded DisplayPort,
and Future Trends ......................................................... 551
Craig Raymond Wiley Parade Technologies, Inc.

40.2: An Improved Differential Signaling Scheme
for the Chip-On-Glass Application of TFT-LCD .................... 555
Hyun-Kyu Jeon Silicon Works Co., Ltd. & KAIST
Kwang-II Oh, Yong-Hwan Moon, Jun-Ho Kim,
Jung-Hwan Choi, Seok-Jae Park, Joong-Ho Na,
Jae-Ryun Shim, Heong-Seog Oh, Dae-Seong Kim,
Dae-Keun HN Silicon Works Co., Ltd.
Jin-Sung Kim, Sung-Cheol Ha, Koo-Won Kang,
Hoe-Ho Lee, Gun-Woo Do, Kyoung-Tae Moon,
Jin-Kyu Kim, Hyun-Chul Choi LG Display Co., Ltd.
Lee-Sup Kim KAIST

40.3: A 2 Gbps/lane Source Synchronous Intra-Panel Interface
for Large Size and High Refresh Rate Panel
with Automatic Calibration ............................................. 559
Seiichi Ozawa, Hiro nobu Akita, Shinyu Suzuki,
Hidetoshi Miura, Shogo Hachiya, Takayuki Murakami,
Kazuhiro Sasaki, Misahiro Kato Thine Electronics, Inc.

40.4: Invited Paper: IDP Standard for an Internal Connection
in a Large-Screen Display ............................................. 563
Alan Kobayashi, Jason Choi STMicroelectronics
Hee-Sub Lee, Changgon Kim, Dongwon Park,
Buyeol Lee LG Display Co., Ltd.

SID 2011 Speaker Contact Information ................................. 567
SID 2011 Executive and Program Committees .......................... 585