

Thursday, May 24 / 9:00 10:10 am / Ballroom B

Chair:

Jin Jang, Kyung Hee University, Seoul, Korea

**L.1: Late-News Paper (OLEDs): 3.0-in. High-Resolution (9:00)
Low-Voltage LTPS AMOLED Display with Novel Voltage-
Programmed Driving Architecture**

*T. Kohno, M. Miyamoto, M. Ishii, N. Kasai
Hitachi Ltd., Tokyo, Japan*

*N. Nakamura, N. Tokuda, H. Akimoto
Hitachi Displays, Ltd., Chiba, Japan*

A new voltage-programmed driving architecture with controlled-amplitude pre-charge for LTPS AMOLED displays was proposed for low-voltage-driving OLEDs. A 3.0-in. 202 × 267-ppi full-color panel produced image-lag-free high-quality pictures at low-voltage (4 V) operation.

**L.2: Late-News Paper (OLEDs): The RGBW Advantage in (9:10)
AMOLED**

*B-W. Lee, K. Park, A. Arkhipov, K. Chung
Samsung Electronics Co., Ltd., Yongin, Korea*

The power efficiencies of RGB and RGBW systems in actual video materials from DVD movies, HDTVs, and IT graphics were determined. The WOLED + RGBW CF system was found to have a 60% lower power consumption than that of the RGB CF system and only a 25% higher power consumption than the RGB OLED (no CF) system.

**L.3: Late-News Paper (Liquid-Crystal Technology): (9:20)
Extremely Broadband Retardation Films**

*H-S. Kwok, X. J. Yu, K. L. Ho
Hong Kong University of Science & Technology, Clear Water
Bay, Hong Kong*

The design and construction of retardation films with any desired dispersion properties by using conventional uniaxial retardation films will be described. In particular, the design of retardation films, which have constant retardation over the entire visible spectrum, will be discussed. The design methodology will be given. Specific examples of broadband quarter-wave and half-wave retardation films will be presented. They show almost no wavelength dependence even at large viewing angles.

**L.4: Late-News Paper (Liquid-Crystal Technology): (9:30)
Wide-Viewing-Angle Transflective TFT-LCD (TF SWAN
Technology)**

*Y. Ishikawa, H. Teramoto, Y. Morii, T. Kawato, K. Nakanishi,
A. Nakamaya, T. Kurata, S. Yachi, K. Kobayashi
Mitsubishi Electric Corp., Kumamoto, Japan*

*T. Teragaki
Melco Display Technology, Inc., Kumamoto, Japan*

*T. Nishioka
Mitsubishi Electric Corp., Hyogo, Japan*

A 8.4-in. transflective TFT-LCD, referred to as TF-SWAN, having a wide viewing angle of $\pm 80^\circ$ in the horizontal direction, high brightness of 300 nits, and a wide operating temperature range (from -40 to 85°) for automotive use have been developed. This performance was realized by applying a new optical design considering for oblique-angle properties.

L.5: Late-News Paper (Liquid-Crystal Technology): Field-Sequential FLCs Fabricated by Ink-Jet Technology (9:40)

*N. Sawatari, M. Okabe, M. Ishikawa, R. Harada
Dai Nippon Printing Co., Ltd., Chiba, Japan*

A novel manufacturing process for ferroelectric liquid-crystal displays (FLCs) using ink-jet printing have been developed. It is a low-cost process having the potential to be applied to large displays. Furthermore, field-sequential VGA (267 ppi) FLCs, 3 in. on the diagonal, have been developed.

L.6: Late-News Paper (Liquid-Crystal Technology): Achromatic Diffraction Using Reactive Mesogen Polarization Gratings (9:50)

*C. Oh, M.J. Escuti
North Carolina State University, Raleigh, NC, USA*

An achromatic polarization grating with ~100% diffraction efficiency over nearly the entire visible spectral range is proposed and was experimentally demonstrated. This five-fold enhancement (~43% vs. ~8.7%) was produced by using two chiral liquid-crystal layers with a modest twist angle and an opposite twist sense. Finite-difference time-domain (FDTD) simulations support the experimental phenomena.

L.7: Late-News Paper (Liquid-Crystal Technology): Ferroelectric Liquid-Crystal Pretilt and Alignment Direction on Obliquely Deposited SiO₂ Surfaces (10:00)

*M. O'Callaghan,
Displaytech, Inc., Longmont, CO, USA*

Single-panel microprojectors are an important emerging segment of the display industry, and price/performance pressures are pushing RPTV LCOS panels more and more strongly toward low-cost single-panel solutions that do not sacrifice performance. FLC-on-silicon microdisplays are already an important segment of the viewfinder market, and with performance advances enabled by switching from polymer alignment surfaces to SiO₂, they could become an important single-panel technology for microprojection and RPTV. Advances in the science and technology of FLC-on-SiO₂ that will accelerate the development of microprojector products and lower the cost of single-panel RPTVs will be described.

BREAK (10:10–10:20)

AUTHOR INTERVIEWS (5:00–6:00)