
NOVEL DISPLAYS AND COMPONENTS

Friday, May 25 / 9:00 10:20 am / Room 104BC

Chair:

Shin-Tson Wu, University of Central Florida, Orlando, FL, U.S.A.

Co-Chair:

Shunsuke Kobayashi, Tokyo University of Science, Yamaguchi, Japan

62.1: Invited Paper: Liquid Crystal and Liquid Lenses for (9:00) Displays and Image Processing*H. Ren, S-T. Wu**University of Central Florida, Orlando, FL, U.S.A.*

A thin flat polymeric microlens to improve the aperture ratio and light efficiency of an LCD, a tunable-focus LC lens for switchable 2-D/3-D displays and imaging processing, and a liquid lens with a large focal-length tenability have been developed. A detailed device structure and the operational mechanism of each lens will be presented.

62.2: Invited Paper: Fast Electro-Optical Switching in Polymer-Stabilized Liquid-Crystalline Blue Phases for Display (9:20) Applications*H. Kikuchi, H. Higuchi**Kyushu University, Kasuga, Japan**Y. Haseba**Chisso Co., Ltd., Tokyo, Japan**T. Iwata**NOF Corp., Tokyo, Japan*

Blue phases have two major advantages over commonly used nematics: a much faster response time and an optically isotropic zero-electric-field state. Polymer-stabilized blue phases with a sufficiently large electric-field-induced birefringence and microsecond response time and the induced-isotropic phases, without any surface treatment, have been developed.

62.3: Doped Multilayer Polymer Cholesteric Liquid-Crystal Flakes: A Novel Electro-Optical Medium for (9:40) Highly Reflective Color Flexible Displays*K. Marshall, A. Trajkovska-Petkoska, K. Hasman, M. Leitch,**G. Cox, T. Kosc, S. D. Jacobs**University of Rochester, Rochester, NY, U.S.A.*

Polymer cholesteric liquid-crystal (PCLC) flake/fluid host suspensions are a novel particle-display technology for full-color reflective-display applications on rigid or flexible substrates. These "polarizing pigments" require no polarizers or color filters, switch rapidly at very low voltages, and produce highly saturated colors with a reflection efficiency approaching 80%.

62.4: Liquid-Crystal Etalon Device for High-Efficiency Field-Sequential Displays (10:00)

*E. Dorigotov, P. Bos
Kent State University, Kent, OH, U.S.A.*

*A. Bhowmik
Intel Corp., Santa Clara, CA, U.S.A.*

A pixel design for high-efficiency field-sequential-color display is proposed. High transmission is achieved through the use of a polarization-insensitive high-transmission etalon device that consists of dielectric mirrors on either side of a twisted-nematic liquid-crystal layer. The device was simulated using a numerical-modeling program, and an optimized design will be presented.

BREAK (10:20–10:40)

AUTHOR INTERVIEWS (12:00–1:00)