

FERROELECTRICS

Wednesday, May 23 / 10:40 am – 12:00 pm / Room 104BC

Chair:

Michael Wand, *LC Vision, LLC, Boulder, CO, U.S.A.*

Co-Chair:

Akihiro Mochizuki, *Nano Loa USA, Inc., Louisville, CO, U.S.A.*

23.1: Invited Paper: Stability of Hysteresis-Free Passively Addressed FLC Display with Inherent Gray Scale (10:40)

E. Pozhidaev
Lebedev Physical Institute of RAS, Moscow, Russia

The steadiness of hysteresis-free passively addressed FLC displays is generally governed by the relationships between the dispersion and polar parts of the FLC anchoring energy with solid substrates. The conditions necessary for the steady operation of hysteresis-free passively addressed FLCs with an inherent gray scale will be described.

23.2: Layer Rotation Mechanism in the Chiral Smectic-C (SmC*) Phase (11:00)

J. N. Jang, A. B. Davey, W. A. Crossland
University of Cambridge, Cambridge, U.K.

Twenty years ago, the irreversible reorientation of smectic layers under asymmetric electric fields was demonstrated. Reversible smectic-layer rotations with an angle much larger than the tilt angle were reported in FLCs and anti-ferroelectric FLCs by applying an asymmetric ac electric field. A coherent model for this observed layer rotation is proposed.

23.3: Cholesteric Liquid Crystal / Ferroelectric Nanoparticles Colloids (11:20)

A. Glushchenko
University of Colorado at Colorado Springs, Colorado Springs, CO, U.S.A.

O. Buchnev, A. Iljin, O. Kurochkin, Y. Reznikov
Institute of Physics, National Academy of Sciences of Ukraine, Kiev, Ukraine

Addition of ultra-small ferroelectric nanoparticles into a cholesteric liquid-crystal mixture results in greatly increased birefringence and dielectric anisotropy. In addition, this results in a broadening of the reflection band, decrease in the driving voltage, switching between bistable textures, and an increase in the threshold steepness.

23.4: Electro-Optic Properties of Ferroelectric Nano-Particle in Liquid-Crystal Dispersions (11:40)

*J. West, F. Li, K. Zhang, H. Atkuri
Kent State University, Kent, OH, U.S.A.*

*A. Glushchenko
University of Colorado, Colorado Springs, CO, U.S.A.*

Electro-optic LC performance can be enhanced by using a dispersion of ferroelectric nanoparticles. Devices using these dispersions have lower driving voltage, faster switching speed, and higher contrast ratio. These changes are caused by an increase in the dielectric anisotropy, birefringence, and elastic constant and can be used to produce better displays.

LUNCH (12:00–2:15)

AUTHOR INTERVIEWS (6:30–7:30)