

Table 11

Publications

David Allender

Conference Proceedings and Technical Reports

G.Y. Panasyuk, J.R. Kelly, P.J. Bos, E.C. Gartland, Jr., D.W. Allender, "The geometrical optics approach in liquid crystal cells with two- and three-dimensional director variations," *Proc. SPIE* **5289**(1) 119-31 (2004).

Philip J. Bos

Peer Reviewed Journals

V. Sergan, X. Wang, P.J. Bos, G.D. Sharp, "Fast switching polymer stabilized splay cell (PSSC)," *Mol. Cryst. Liq. Cryst.* **410**, 1015-1021 (2004).

C.H. Wang, M. Wand, M. Handschy, P.J. Bos, "Defect-free bistable C1 surface stabilized ferroelectric liquid crystal display," *Jpn. J. Appl. Phys.* **43**, 3479-3483 June (2004).

J.N. Hilfiker, B. Johs, C.M. Herzinger, J.F. Elman, E. Montbach, D. Bryant, P.J. Bos, "Generalized spectroscopic ellipsometry and Mueller-matrix study of twisted nematic and super twisted nematic liquid crystals," *Thin Solid Films* **455**, 596-600 May 1, (2004).

B. Wang, X.H. Wang, P.J. Bos, "Finite-difference time-domain calculations of a liquid-crystal-based switchable Bragg grating," *J. Opt. Soc. Am. A* **21**, 1066-1072 June (2004).

E.N. Montbach, P.J. Bos, W.J. Gambogi, "Compensating a twisted nematic liquid crystal display with matched wavelength dispersion retarders," *Jpn. J. Appl. Phys.* **43**, 1376-1383 April (2004).

G.F. Barrick, P.J. Bos, C.E. Titus, "Computing the liquid crystal director field in optical phased arrays," *Opt. Eng.* **43** 924-932 April (2004).

B. Wang, D.B. Chung, P.J. Bos, "Finite-difference time-domain optical calculations of polymer-liquid crystal composite electrodiffraction device," *Jpn. J. Appl. Phys.* **43**, 176-181, January (2004).

B. Wang, P.J. Bos, C.D. Hoke, "Light propagation in variable-refractive-index materials with liquid-crystal-infiltrated microcavities," *J. Opt. Soc. Am. A* **20**, 2123-2130, November (2003).

Conference Proceedings and Technical Reports

B. Wang, X. Wang, P.J. Bos, "Study of switchable liquid crystal polymer grating by finite-difference time-domain calculation," *Proc. SPIE* **5213**, 104-110 (2004).

G.Y. Panasyuk, J.R. Kelly, P.J. Bos, E.C. Gartland, Jr., D.W. Allender, "The geometrical optics approach in liquid crystal cells with two- and three-dimensional director variations," *Proc. SPIE* **5289**(1) 119-31 (2004).

B. Wang, X. Wang, P.J. Bos, "Study of switchable liquid crystal polymer grating by finite-difference time-domain calculation," *Proc. SPIE* **5213**, 104-110 (2004).

X. Wang, B. Wang, P.J. Bos, J. Anderson, M.P. Kujawinska, F. Miranda, "Limitation of liquid crystal on silicon spatial light modulator for holographic three-dimensional displays," *SID Intl. Digest Tech. Papers*, **XXXV**, Book II, 1522-1525, May (2004).

E. Montbach, P.J. Bos, "Control of wavelength dispersion in form birefringent retarders for liquid crystal displays," *SID Intl. Digest Tech. Papers*, **XXXV**, Book II, 1312-1315, May (2004).

Y. Zhang, P.J. Bos, D.B. Chung, A. Grunnet-Jepsen, "Poincare sphere analysis of LCOS E-O effects," *SID Intl. Digest Tech. Papers XXXV*, Book II, 994-997, May (2004).

G.D. Lee, P.J. Bos, S-H Ahn, K.J. Lee, "'Warm up' of a pi-cell liquid crystal device," *Proc. IMID, 3rd Intl. Mtg. Info. Display*, 1096 (200). Invited

X. Wang, B. Wang, J. Pouch, F. Miranda, M. Fisch, J.E. Anderson, V. Sergan, P.J. Bos, "Liquid crystal on silicon (LCOS) wavefront corrector and beam sSteerer," *Proc. SPIE 5162*, 139-146 (2003).

Liang-Chy Chien

Books and Chapters in Books

Conference Proceedings: L. C. Chien and M.H. Wu, editors, *Liquid Crystal Materials, Devices and Applications X and Projection Displays X*, SPIE **5289** (2004).

Peer Reviewed Journals

J.B. Baek, L.-C. Chien, "Synthesis and photoluminescence of linear and hyperbranched polyethers containing phenylquinoxaline units and flexible aliphatic spacers," *J. Polym. Sci. A, Polym. Chem.* **42**, 3587 (2004).

E.J. Choi, J.C. Ahn, L.C. Chien, C.-K. Lee, W.-C. Zin, D.-C. Kim, S.-T. Kim, "Main chain polymers containing banana-shaped mesogens: Synthesis and mesomorphic properties," *Macromol.* **37**, 71-78 (2004).

T. Sergan, J. Kelly, O. Yaroschuk, L. C. Chien, "Negative birefringence films from non-traditional materials," *Mol. Cryst. Liq. Cryst.* **409**, 153-162 (2004).

C. O. Catanescu, L. C. Chien, "High birefringence nematic liquid crystals for display and telecom applications," *Mol. Cryst. Liq. Cryst.* **411**, 93-102 (2004).

S. N. Lee, L.-C. Chien, "The effect of polymer networks on ferroelectric liquid crystals," *Mol. Cryst. Liq. Cryst.* **411**, 183-190 (2004).

S. H. Kim, L. C. Chien, "Liquid crystal blazed gratings formed in a single-step through photo-induced localization of polymer into a prismatic structure," *Opt. Express* **12**, 1238-1242 (2004).

C. O Catanescu, S. T. Wu, L. C. Chien, "Tailoring the physical properties of some high birefringence isothiocyanato-based liquid crystals," *Liq. Cryst.* **31**, 541-555 (2004).

O. Yaroshchuk, Yu. Zakrevskyy, S. Kumar, J. Kelly, L.-C. Chien, J. Lindau, "Three-dimensional orientational order in the bulk and on the surface of polymer films and its effect on liquid-crystal alignment," *Phys. Rev. E* **69**(1-1), 011702/1-011702/7 (2004).

S.W. Kang, S.H. Jin, L.C. Chien and S. Sprunt, "Spatial and Orientational Templating of Semiconducting Polymers in a Cholesteric Liquid Crystal," *Adv. Funct. Matter.* **14**, 329-334 (2004).

C.-K. Lee, S.-S. Kwon, T.-S. Kim, E.-J. Choi, S.-T. Shin, W.-C. Zin, D.-C. Kim, J.-H. Kim, L.-C. Chien, "Synthesis and properties of new materials with banana-shaped achiral cores and chiral end groups," *Liq. Cryst.*, **30**(12), 1401-1406 (2003).

S. Suresh, L. C. Chien, "Electro-optical properties of polymer-stabilized ferroelectric liquid crystal," *Ferroelectrics* **287**, 1-6 (2003).

Conference Proceedings and Technical Reports

S. Kim, L.C. Chien, "Polymer stabilized liquid crystal light modulators," *SPIE 5289*, 86-93 (2004).

C. O. Catanescu, S. N. Lee, L. C. Chien, "Conjugation effects on high birefringence liquid crystals," *IMID '03 Digest* **3**, 260-262 (2003).

C. K. Lee, L. C. Chien, "Synthesis and characterization of banana-shaped achiral molecules," *IMID '03 Digest* **3**, 505-508 (2003).

S. W. Kang, D. W. Rafferty, J. L. Koenig, L. C. Chien, "Liquid crystal-controlled polymer architectures," *Polym. Mater. Sci. Eng.* **89**, 92-93 (2003).

P. Chu, L. C. Chien, "Light induced contraction in freely-suspended smectic films," *Polym. Mat. Sci. Eng.* **89**, 44-45(2003).

S. H. Kim, L. C. Chien, "Polymer-Enhanced LCDs," *Proc. IEEE* (2003).

Q. Wang, S. Kumar, H. Wonderly, L. Qiu and L.C. Chien, "Twist nematic LCDs with internal polymer columns formed by phase separation," *IDRC* (2003).

Daniele Finotello

Peer Reviewed Journals

D. Finotello, T. Jin, "Changing the surface-liquid crystal interaction through the adsorption of silica nanoparticles," *IMID 2004 Digest* **26.5**, 846-847 (2004).

T. Jin, D. Finotello, "Controlling disorder in liquid crystal aerosol dispersions," *Phys. Rev. E* **69**, 041704 (2004).

F. Mercuri, M. Marinelli, U. Zammit, C.C. Huang, D. Finotello, "Critical behavior of thermal parameters at the smectic-A – hexatic-B and smectic-A – Smectic-C phase transitions in liquid crystals," *Phys. Rev. E* **68**, 051705 (2003).

D. Finotello, T. Jin, "Chain length dependence of confined liquid crystals configurations," *J. Info. Display*, **KIDS 4**, 14 (2003).

Antal Jákli

Peer Reviewed Journals

S. Rauch, C. Selbmann, P. Bault, H. Sawade, G. Heppke, O. Morales-Saavedra, M.Y.M. Huang, A. Jákli, "Glass forming banana-shaped compounds: vitrified liquid crystal states," *Phys. Rev. E* **69**, 021707 (2004).

S. Abeygunaratne, A. Jákli, G. Milkereit, H. Sawade, V. Vill, "Antiferroelectric ordering of amphiphilic glycolipids in bent-core liquid crystals," *Phys. Rev. E* **69**, 021703 (2004); also *Virtual J. Nanoscale Sci. Tech.* **9** (9), (2004); also *Virtual J. Biol. Phys. Res.* (3/1/2004).

V. Prasad, A. Jákli, "Achiral bent – core azo compounds: observation of photo-induced effects in an antiferroelectric tilted smectic mesophase" *Liq. Cryst.* **31** (4), 473-479 (2004).

L. Zou, J. Wang, V.J. Beleva, E.E. Kooijman, S.V. Primak, J. Risse, W. Weissflog, A. Jákli, E.K. Mann "Langmuir monolayers of bent-core molecules," *Langmuir* **20** (7), 2772-2780 (2004).

K. Fodor-Csorba, A.Vajda, A. Jákli, Ch. Slugovc, G. Trimmel, D. Demus, E. Gács-Baitz, S. Holly, G. Galli, "Ester type banana-shaped liquid crystalline monomers: Synthesis and physical properties," *J. Mater. Chem.* **14**, 2499-2506 (2004).

G. Liao, S. Stojadinovic, G. Pelzl, W. Weissflog, S. Sprunt, A. Jákli, "An optically isotropic ferroelectric liquid crystal phase," *Elect. Liq. Cryst. Comm.*, www.e-lc.org/docs/2004_05_11_15_51_54.

C. Huang, Q. Zhang, A. Jákli, "Nematic anisotropic liquid crystal gels-self-assembled nanocomposites with high electromechanical response," *Adv. Functional Mat.* **13**(7), 525-529 (2003).

A. Jákli, Y.M. Huang, K. Fodor-Csorba, A. Vajda, G. Galli, S. Diele, G. Pelzl, "Reversible switching between optically isotropic and birefringent states in a bent-core liquid crystal," *Adv. Mat.* **15**(19), 1606-1610 (2003).

J.A. Olivares, S. Stojadinovic, T. Dingemans, S. Sprunt, A. Jákli, "Optical studies of the nematic phase of an oxazole-derived bent-core liquid crystal," *Phys. Rev. E.* **68**, 041704 (2003).

Conference Proceedings and Technical Reports

A. Jákli, K. Fodor-Csorba, "Electro-optics of liquid crystals of bent-shape molecules," *IMID'03 Digest*, 1108-1111 (2003).

S. Choi, Y.M. Huang, A. Jákli, T.K. Lim, C.K. Lee, S.T. Shin, "The study of molecular structures for new banana-shaped liquid crystals," *IMID'03 Digest*, 595-599 (2003).

C. Binet, S. Rauch, Ch. Selbmann, Ph. Bault, G. Heppke, H. Sawade, A. Jákli, "Evidence for molecular chirality induced polarisation in banana liquid crystal phases," *Proc. German Liq. Cryst. Workshop*, (2003).

Jack R. Kelly

Peer Reviewed Journals

O. Yaroshchuk, Yu. Zakrevskyy, S. Kumar, J. Kelly, L.-C. Chien, J. Lindau, "Three-dimensional orientational order in the bulk and on the surface of polymer films and its effect on liquid-crystal alignment," *Phys. Rev. E*, **69**(1), 011702 (2004).

M.D. Lavrentovich, T.A. Sergan, J.R. Kelly, "Switchable broadband achromatic half-wave plate with nematic liquid crystals," *Opt. Lett.* **29**(12), 1411(2004).

T. Sergan, J. Kelly, O. Yaroshchuk, L. C. Chien, "Negative birefringence films from non-traditional materials," *Mol. Cryst. Liq. Cryst.* **409**, 153-162 (2004).

O.V. Yaroshchuk, A.D. Kiselev, Yu.A. Zakrevskyy, T.V. Bidna, J. Kelly, L.-C. Chien, J. Lindau, "Photoinduced three-dimensional orientational order in side chain liquid crystal azopolymers," *Phys.Rev. E* **68**(1), 011803(2003).

Conference Proceedings and Technical Reports

G. Panasyuk, J. Kelly, P. Bos, E.C. Gartland, D.W. Allender, "The geometrical optics approach in liquid crystal cells with two- and three-dimensional director variations," *SPIE-IS&T* **5289**, 119(2004).

Satyendra Kumar

Peer Reviewed Journals

J.-H. Kim, S. Kumar, "Single glass substrate LCDs with phase separated composite organic film method," *J. Displays* (Korea) (2004).

V. Prasad, S.-W. Kang, S. Kumar, "Photo-responsive and electrically switchable mesophases in a novel class of achiral bent-core azo compounds," *J. Mat. Chem.* **14**, 1495 (2004).

B. R. Acharya, A. Primak, S. Kumar, "The bent-core biaxial nematic phase," *Liq. Cryst. Today*, **13**, 1 (2004). Invited

B.R. Acharya, A. Primak, S. Kumar, "A biaxial nematic phase exhibited by bent-core molecules," *Phys. Rev. Lett* **92**, 145506 (2004).

P. K. Bhowmik, H. Han, J. J. Cebe, I. K. Nedeltchev, S.-W. Kang, S. Kumar, "Synthesis and characterization of poly(pyridinium) salts with organic counterions exhibiting both thermotropic liquid-crystalline and light-emitting properties," *Macromol.* **37**, 2688 (2004).

O. Yaroshchuk, Yu. Zakrevskyy, J. Kelly, S. Kumar, L.-C. Chien, J. Lindau, "Three dimensional orientational ordering in the bulk and on the surface of the polymer substrate and their effect on LC alignment," *Phys. Rev. E* **69**, 011702 (2004).

P. K. Bhowmik, H. Han, J. J. Cebe, R. A. Burchett, B. Acharya, S. Kumar, "Ambient-temperature thermotropic liquid-crystalline viologens bis(triflimide)," *Liq. Cryst.* **30**, 1433 (2003).

B. R. Acharya, A. Primak, T. J. Dingemans, E. T. Samulski, S. Kumar, "The elusive thermotropic biaxial nematic phase in rigid bent-core molecules," *Pramana* **61**, 231 (2003).

Conference Proceedings and Technical Reports

C. Wang, P. J. Bos, S. Kumar, M. Wand, M. Handschy, "Eliminating layer undulation textures in SSFLC devices," *SID Intl. Digest Tech. Papers* **34**, 608 (2003).

Oleg D. Lavrentovich

Books and Chapters in Books

O.D. Lavrentovich, "Fluorescence confocal polarizing microscopy: Three-dimensional imaging of the director," in *Liquid Crystals and Other Soft Materials*, B.K. Sadashiva, ed., Indian Acad. Sci., Tholasi Prints India, Bangalore, India (reprinted from, *Pramana – J. Phys.* **61**, No.2, 373-384 August, 2003).

O.D. Lavrentovich, "Defects in liquid crystals: Surface and interfacial anchoring effects," in *Patterns of Symmetry Breaking*, H. Arodz, J. Dziarmaga, and W.H. Zurek, eds., NATO Science Series, II. Mathematics, Physics, and Chemistry, **127**, 161-195, Kluwer Academic Publishers: The Netherlands (2003).

Peer Reviewed Journals

O. Yaroshchuk, R. Kravchuk, A. Dobrovolskyy, L. Qiu, O.D. Lavrentovich, "Planar and tilted uniform alignment of liquid crystals by plasma treated substrates," *Elect. Liq. Cryst. Comm.*, www.e-lc.org/docs/2004_01_30_09_07_21/ (2004).

O. Yaroshchuk, R. Kravchuk, A. Dobrovolskyy, L. Qiu, O.D. Lavrentovich, "Planar and tilted uniform alignment of liquid crystals by plasma treated substrates, *Liquid Crystals*," *Liq. Cryst.* **31**, 859-869 (2004).

A.B. Golovin, Y. Yin, S.V. Shiyonovskii, O.D. Lavrentovich, "Fast switching dual frequency liquid crystal optical retarder for beam steering applications," in *Liquid Crystal Materials, Devices and Applications X and Projections Displays X*, L.-C. Chien and M.H. Wu, eds., *SPIE* **5289**, 53-62 (2004).

I.I. Smalyukh, R. Pratibha, O.D. Lavrentovich, N.V. Madhusudana, "Free-standing films of twist grain boundary TGB(A) and UTGB(C*) liquid crystals studied by fluorescence confocal polarizing microscopy," *Liq. Cryst.* **30**(8), 877-888 (2003).

O.D. Lavrentovich, "Fluorescence confocal polarizing microscopy: Three-dimensional imaging of the director," *Pramana – J. Phys.* **61**(2), 373-384 August (2003).

A.B. Golovin, S.V. Shiyonovskii, O.D. Lavrentovich, "Fast-switching dual-frequency liquid crystal optical retarder driven by an amplitude and frequency modulated voltage," *Appl. Phys. Lett.* **83**, 3864-3866 (2003).

S. Garg, K.Purdy, E. Bramley, I. Smalyukh, O.D. Lavrentovich, "Electric-field induced nucleation and growth of focal conic and stripe domains in a smectic A liquid crystals," *Liq. Cryst.* **30**(12) 1377-1390 (2003).

Mary E. Neubert (Emeritus)

Peer Reviewed Journals

M.K. Ramazanoglu, P.S. Clegg, R.J. Biregneau, C.W. Garland, M.E. Neubert, J.M. Kim, "First-order isotropic-Smectic-A transition in liquid-crystal-aerosil gels," *Phys. Rev. E* **69**, 061706-1 – 061706-8 (2004).

M.H. Zhu, C. Rosenblatt, J.M. Kim, M.E. Neubert, "Bent-core dopant in a liquid crystal having a reentrant synclonic phase," *Phys. Rev E* **70**, 031702-1 – 031702-5 (2004).

G. Mertens, T. Roder, H. Matthias, H. Marsmann, H.-S.R. Kitzerow, S.L. Schweizer, C. Jamois, R.B. Wehrspohn, M.E. Neubert, "Two- and three-dimensional photonic crystals made of macroporous silicon and liquid crystals," *Appl. Phys. Lett.* **83**, 3036-3038 (2003).

Quan Li

Peer Reviewed Journals

Q. Li, C. Jin, P.A. Petukhov, A.V. Rukavishnikov, T. Zaikova, A. Phadke, D.H. LaMunyon, M.D. Lee, J.F.W. Keana, "Synthesis of well-defined tower-shaped 1,3,5-trisubstituted adamantanes incorporating a macrocyclic trilactam ring system," *J. Org. Chem.* **69** 1010-1019 (2004).

Peter Palffy-Muhoray

Peer Reviewed Journals

N. Abraham, P. Palffy-Muhoray, "A dunking bird of the second kind," *Am. J. Phys.* **72**, 782-785 (2004).

M. Camacho-Lopez, H. Finkelmann, P. Palffy-Muhoray, M. Shelley, "Fast liquid-crystal elastomer swims into the dark," *Nature Mat.* **3**, 307-310, May (2004).

P. Palffy-Muhoray, R. Meyer, "Bridging the experiment-theory gap," *Nature Mat.* **3**, 139-140 (2004).

P. Palffy-Muhoray, M. Camacho-Lopez., H. Finkelmann, M. Shelley, "Fast liquid crystal elastomer swims into the dark," *Elect. Liq. Cryst. Commun.*, www.e-lc.org/docs/2003_11_25_00_32_43/, (2003).

W. Cao, A. Munoz, P. Palffy-Muhoray, B. Taheri, "Mirrorless lasing in liquid crystalline photonic band gap materials," *Mat. Res. Soc. Symp. Proc.* **776**, Q9.7.1, 159-167 (2003).

Samuel Sprunt

Peer Reviewed Journals

S. W. Kang, L. C. Chien, S. H. Jin, S. Sprunt, "Spatial and orientational templating of semiconducting polymer networks in a cholesteric liquid crystal," *Adv. Func. Mat.* **14**, 329 (2004).

J. Olivares, S. Stojadinovic, E. Samulski, S. Sprunt, A. Jákli, "Optical studies of the nematic phase of an oxazole-derived bent-core liquid crystal," *Phys. Rev. E* **68**, 041704 (2003).

Conference Proceedings and Technical Reports

S. Sharma, A. Adorjan, K. Neupane, A. Baldwin, S. Sprunt, "One nanosecond photon correlation spectroscopy on smectic liquid crystal films," *BAPS* **51**, 2246 (2004).

John L. WestPeer Reviewed Journals

J. West, K. Zhang, G. Liao, Y. Reznikov, D. Andrienko, M.P. Allen, A. Glushchenko, "Mechanisms of formation of three dimensional structure of particles in a liquid crystal," *Mol. Cryst. Liq. Cryst.* **410**, 83-93 (2004).

Conference Proceedings and Technical Reports

K. Zhang, A. Glushchenko, J.L. West, "Ordered micro-particle structures in a liquid crystal: formation and physical properties," *Proc. Mat. Res. Soc. (New Materials for Microphotonics)* **817** (2004).

O. Buchnev, A. Glushchenko, Y. Reznikov, V. Reshetnyak, O. Tereshchenko, J.L. West, "Diluted ferroelectric suspension of Sn₂P₂S₆ nanoparticles in nematic liquid crystal," *Proc. SPIE (Nonlinear Optics of Liquid and Photorefractive Crystals)* **5257**, 7-12 (2003).

Deng-Ke YangConference Proceedings and Technical Reports

F. Zhou, D.-K. Yang, "Polymer stabilized electrically controlled birefringence transreflective liquid crystal display," *SID Intl. Digest Tech. Papers XXXV*, 38-41 (2004).

D.-K. Yang, "Effects of cell structure on a liquid crystal optical switch based on internal reflection," *Proc. SPIE* **5289**, 161-169 (2004).

D.-K. Yang, A. Khan, J. W. Doane, "Cholesteric liquid crystals for reflective displays," *Proc. Intl. Mini-Conf. Info. Electronics System*, 161-163 (2003).

Adjunct/Temporary Faculty**Michael R. Fisch**

X. Wan, B. Wang, J. Pouch, F. Miranda, M. Fisch, J.E. Anderson, V. Sergan, P.J. Bos, "Liquid crystal on silicon (LCOS) wavefront corrector and beam steerer," *Proc. SPIE* **5162** 139-146 (2003).

A. Primak, M. Fisch, S. Kumar, "New features of critical behavior at the nematic to smectic-A transition revealed by measurements in strong magnetic field," *Liq. Cryst. Today* **12**, 10 (2003). Invited.

Sergij Shiyanovskii

A.B. Golovin, Y. Yin, S.V. Shiyanovskii, O.D. Lavrentovich, "Fast switching dual frequency liquid crystal optical retarder for beam steering applications," in *Liquid Crystal Materials, Devices and Applications X and Projections Displays X*, L.-C. Chien and M.H. Wu, eds., *Proc. SPIE* **5289**, 53-62 (2004).

A.B. Golovin, S.V. Shiyanovskii, O.D. Lavrentovich, "Fast-Switching Dual-Frequency Liquid Crystal Optical Retarder, Driven by an Amplitude and Frequency Modulated Voltage," *Appl. Phys. Lett.* **83**, 3864-3866 (2003).

Bahman Taheri

W. Cao, A. Munoz, P. Palfy-Muhoray B. Taheri, "Mirrorless lasing in liquid crystalline photonic band gap materials," *Proc. Mat. Res. Soc. Symp.* **776**, Q9.7.1, 159-167 (2003).

