PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 9940

, "Front Matter: Volume 9940," Proc. SPIE 9940, Liquid Crystals XX, 994001
(22 November 2016); doi: 10.1117/12.2262206

Event: SPIE Organic Photonics + Electronics, 2016, San Diego, California,
United States

PROCEEDINGS OF SPIE

Liquid Crystals XX

Iam Choon Khoo
Editor

28–30 August 2016
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 9940

Proceedings of SPIE 0277-786X, V. 9940

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Liquid Crystals XX, edited by Iam Choon Khoo, Proc. of SPIE Vol. 9940, 994001
© 2016 SPIE · CCC code: 0277-786X/16/\$18 · doi: 10.1117/12.2262206

Proc. of SPIE Vol. 9940 994001-1

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Liquid Crystals XX*, edited by Iam Choon Khoo, Proceedings of SPIE Vol. 9940 (SPIE, Bellingham, WA, 2016) Six-digit article CID Number.

ISSN: 0277-786X

ISSN: 1996-786X (electronic)

ISBN: 9781510602717

ISBN: 9781510602724 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

SPIE.org

Copyright © 2016, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/16/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

Paper Numbering: *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a six-digit CID article numbering system structured as follows:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

v	<i>Authors</i>
vii	<i>Conference Committee</i>

LIQUID CRYSTAL PHOTONICS

9940 03	Array of liquid crystal polymer-based Fabry-Perot resonators for image selection by polarization (Invited Paper) [9940-2]
9940 04	Effect of UV absorption anisotropy on hybrid aligned polymer stabilized liquid crystal cell (Invited Paper) [9940-3]

OPTICAL SWITCHING, HOLOGRAPHY, AND ALIGNMENT

9940 06	Light-induced effects in liquid crystals: recent developments (Keynote Paper) [9940-5]
9940 08	Pretilt angle of liquid crystals generated by polyimide photoalignment layers treated with vapor of primary and tertiary alkylamines (Invited Paper) [9940-7]
9940 09	Elimination of image flicker in a fringe-field switching liquid crystal cell (Invited Paper) [9940-8]

POLARIZED LUMINESCENCE AND LIGHT-INDUCED EFFECTS

9940 0A	Helicity, assembly, and circularly polarised luminescence of chiral AlEgens (Keynote Paper) [9940-9]
9940 0B	Direct induction of molecular alignment in liquid crystal polymer network film by photopolymerization (Invited Paper) [9940-10]
9940 0C	Theory and computer simulation of photo induced deformations in liquid crystal azobenzene polymers (Invited Paper) [9940-11]

MOLECULAR ASSEMBLY AND OPTICAL DEVICES

9940 0G	All-optical phase shifter with photovoltaic liquid crystal cell (Invited Paper) [9940-15]
---------	--

BIO-SENSING AND ELECTRO-OPTICAL DEVICES

9940 0K	Chiral liquid crystals as biosensing platforms (Invited Paper) [9940-19]
---------	---

9940 ON **Liquid crystals for optical modulation and sensing applications (Invited Paper)** [9940-22]

MOLECULAR DYNAMICS, PHASE TRANSITION, AND DEFECT STRUCTURES

9940 OU **Mesomorphic glass nanocomposites made of metal alkanoates and nanoparticles as emerging nonlinear-optical materials (Invited Paper)** [9940-29]

9940 OV **Unveiling details of defect structures in chiral and achiral nematic droplets by improving simulations of optical images (Invited Paper)** [9940-30]

9940 OW **Direct evidence of the molecular interaction propagation in the phase transition of liquid crystals (Invited Paper)** [9940-31]

9940 OX **A non-mechanical zoom lens fabricated from liquid crystal reactive mesogens** [9940-32]

HELICAL- AND BLUE-PHASE, PLASMONIC, AND THZ

9940 OZ **Diffraction devices based on blue phase liquid crystals (Invited Paper)** [9940-34]

9940 10 **Effect of dielectric permittivity on the performance of polymer dispersed liquid crystal (PDLC) electrolyte dye-sensitized solar cells (DSSCs)** [9940-35]

9940 13 **Longitudinal stratified liquid crystal structures to enable practical spatial light modulators in the terahertz regime** [9940-38]

NEXT/NEW GENERATION LC PHOTONICS

9940 19 **Tuning surface plasmons in graphene ribbons with liquid crystal layer (Invited Paper)** [9940-44]

9940 1B **Fabrication of micro- and nanometre-scale polymer structures in liquid crystal devices for next generation photonics applications** [9940-46]

POSTER SESSION

9940 1E **Field induced UV-alignment method for a zero pre-tilt liquid crystal cell** [9940-49]

9940 1I **Thermal modulation of selective transmittance spectra by combination of cholesteric liquid crystal cells** [9940-53]

9940 1J **Resonant mode at the band edge** [9940-54]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Aizawa, M., 0B	Manzanares-Martinez, J., 1J
Baek, Jong-Min, 09	McGinty, Colin, 0X
Bettella, G., 0G	Miki, Kazushi, 08
Bhowmik, Achintya, 0X	Miraya, T., 0U
Booth, Martin J., 1B	Molin, S., 0N
Bortolozzo, U., 0N	Morris, Stephen M., 1B
Bos, Philip J., 0X	Mur, Urban, 0V
Bunning, Timothy J., 19	Nouchi, P., 0N
Čančula, Miha, 0V	Ogiwara, Akifumi, 1I
Castro-Garay, P., 1J	Oh, Seung-Won, 09, 1E
Ciciulla, F., 0G	Park, Jun-Hee, 1E
Čopar, Simon, 0V	Peigné, A., 0N
Corella-Madueño, A., 1J	Pellat, A., 1J
Dolfi, D., 0N	Petrova, Tatiana, 0C
Elston, Steve J., 1B	Pozza, G., 0G
Estrada, S., 1J	Qasim, Malik M., 10
Evans, Dean R., 19	Ravnik, Miha, 0V
Gao, Kun, 0X	Reshetnyak, Viktor Yu., 0G, 19
Garbovskiy, Y., 0U	Residori, S., 0N
Guo, Junpeng, 13	Rosas-Burgos, A., 1J
Hisano, K., 0B	Sada, C., 0G
Hsiao, Yu-Cheng, 0K	Sakamoto, Kenji, 08
Huang, Shuaijia, 0Z	Salter, Patrick S., 1B
Huignard, J. P., 0N	Saphiannikova, Marina, 0C
Il'nytskyi, Jaroslav, 0C	Sato, Takahiro, 0W
Inoue, K., 04	Shishido, A., 0B
Ishizu, M., 0B	Simoni, F., 06, 0G
Kakiuchida, Hiroshi, 1I	Su, Yikai, 0Z
Kamarudin, Muhammad A., 10	Sung, Yu-Chien, 0K
Katayama, Kenji, 0W	Takasu, T., 04
Khan, Ammar A., 10	Tang, Ben Zhong, 0A
Kim, Jung-Wook, 09	Tanori, Judith, 1J
Kim, Se-Um, 03	Tareki, Abubaker M., 13
Kim, Wonkyu, 13	Tartan, Chloe C., 1B
Kiyohara, Shogo, 08	Toshchevnikov, Vladimir, 0C
Klimusheva, G., 0U	Usami, Kiyoaki, 08
Kurata, Y., 0B	Vargas Hernández, D., 1J
Kushnir, K., 0G	Wilkinson, Timothy D., 10
Kuwahara, Shota, 0W	Yamaguchi, R., 04
Lee, In-Ho, 03	Yoon, Tae-Hoon, 09, 1E
Lee, Ji-Hoon, 09	Yu, Eui-Sang, 03
Lee, Mon-Juan, 0K	Zaltron, A., 0G
Lee, Sin-Doo, 03	Žumer, Slobodan, 0V
Lee, Wei, 0K	
Li, Bing Shi, 0A	
Li, Hongkun, 0A	
Li, Yan, 0Z	
Lindquist, Robert G., 13	
Lucchetti, L., 06, 0G	

Conference Committee

Symposium Chairs

Zakya H. Kafafi, Lehigh University (United States)

Luisa Torsi, Università degli Studi di Bari (Italy)

Conference Chair

Iam Choon Khoo, The Pennsylvania State University (United States)

Conference Program Committee

Timothy J. Bunning, Air Force Research Laboratory (United States)

Shaw-Horng Chen, University of Rochester (United States)

Neil Collings, Two Trees Photonics Ltd. (United Kingdom)

Jean-Pierre Huignard, Jphopto (France)

Tomiki Ikeda, Chuo University (Japan)

Malgosia Kaczmarek, University of Southampton (United Kingdom)

Oleg D. Lavrentovich, Kent State University (United States)

Sin-Doo Lee, Seoul National University (Korea, Republic of)

Tsung-Hsien Lin, National Sun Yat-Sen University (Taiwan)

Francesco Simoni, Università Politecnica delle Marche (Italy)

Nelson V. Tabiryan, BEAM Company (United States)

David M. Walba, University of Colorado at Boulder (United States)

Shin-Tson Wu, CREOL, The College of Optics and Photonics, University of Central Florida (United States)

Session Chairs

- 1 Liquid Crystal Photonics
Iam Choon Khoo, The Pennsylvania State University (United States)
- 2 Optical Switching, Holography, and Alignment
Timothy J. Bunning, Air Force Research Laboratory (United States)
- 3 Polarized Luminescence and Light-induced Effects
Francesco Simoni, Università Politecnica delle Marche (Italy)
- 4 Molecular Assembly and Optical Devices
David Walba, University of Colorado Boulder (United States)
- 5 Bio-sensing and Electro-optical Devices
Oleg D. Lavrentovich, Kent State University (United States)

- 6 3D Display and Advanced Photonics Devices
Tsung-Hsien Lin, National Sun Yat-Sen University (Taiwan)
- 7 Molecular Dynamics, Phase Transition, and Defect Structures
Sin-Doo Lee, Seoul National University (Korea, Republic of)
- 8 Helical- and Blue-Phase, Plasmonic, and THz
Nelson V. Tabiryan, BEAM Engineering For Advanced Measurements Company (United States)
- 9 Novel LC Materials and Optical Devices
Nelson V. Tabiryan, BEAM Engineering For Advanced Measurements Company (United States)
- 10 Next/New Generation LC Photonics
Iam Choon Khoo, The Pennsylvania State University (United States)