

Multi-domain liquid crystal alignment by micro-contact printed polymer layers

Hak-Rin Kim, Jong-Wook Jung, You-Jin Lee, Min-Soo Shin, June-Yong Song, and Jae-

Hoon Kim*

Department of Electronics and Computer Engineering, Hanyang University, Seoul 133-791, Korea

We propose a patterning method of liquid crystal (LC) alignment layers for producing multi-domain LC structures. It is demonstrated that conventional LC alignment materials such as commercially available polyimides can be easily patterned on an ITO substrate or a polymer film by controlling pattern-transferring conditions such as baking procedures of solvated polymers and facilitating wetting properties of patterning materials on a mold surface and a base surface to be patterned. Several types of multi-domain LC geometries can be produced depending on the patterning materials, the base film, and the patterned shapes. Our micro-contact printing method is expected to be a very useful tool in enhancing or designing electro-optic properties of LC-based devices with multi-domain LC structures due to its simplicity in fabrication as well as the stability of the patterned LC anchoring.

**The 10th JAPAN-KOREA
INTERNATIONAL SYMPOSIUM
On Advanced Display Materials and Devices**

ADMD2006

**22-23 June 2006
Kumamoto, Japan**

Under the Auspices of

The Japanese Liquid Crystal Society
The Korea Society of Industrial Engineering Chemistry
The Society for Information Display, Korea Chapter
Advanced Display Manufacturing Research Center(ADMRC)
Mobile Display Research Center(MDRC)

Supported by

The Grant-in-Aid for Scientific Research(S) (16105004) from
the Japan Society for the Promotion of Science

P-42	Multi-domain liquid crystal alignment by micro-contact printed polymer layers	92
	Hak-Rin Kim, Jong-Wook Jung, You-Jin Lee, Min-Soo Shin, June-Yong Song, Jae-Hoon Kim	
P-43	Stability Enhanced Flexible Liquid Crystal Display using Micro-Structure	93
	Se-Jin Jang, Jun-Hyung Kim, Ji-Hong Bae, Yoonsuik Choi, Hak-Rin Kim, Sang Il Kim, JunHyung Souk, Jae-Hoon Kim	
P-44	Reversible photo-tuning of the lasing wavelength from cholesteric liquid crystals by isomerization of chiral azobenzene derivatives	94
	Soichiro Okada, Yohko Hatae, Teppei Yoshioka, Tomonari Ogata, Takamasa Nonaka and Seiji Kurihara	
P-45	Towards a Color Electronic Paper through a Fabrication of Color Electrophoretic Microcapsules	95
	Chul Am Kim, Hey Jin Myoung Seung-Youl Kang, Gi Heon Kim, Seong Deok Ahn, In-Kyu You, Jiyoung Oh, Kyu Ha Baek, Kyung Soo Suh	
P-46	Preparation of Azo-functionalized Polymer/Nano-sphere Composites and Their Photoresponsive Properties	96
	Sujun Shao, Tomonari Ogata, Takamasa Nonaka, Seiji Ujita, Seiji Kurihara	
P-47	Fabrication and Electroluminescence Properties of White OLED with Three-Component, Emitting Layer: Blue and Yellowish-green Polymers Blend with Red Dopant	97
	Giseop Kwak, Hyun Suk Kim, Soon-Hak Kim, Youngjune Hur, Lee Soon Park	
P-48	Synthesis of multi-arm azo-functionalized polymers with well-controlled molecular weight by atom transfer radical polymerization	100
	Keijirou OKAWACHI, Tomonari OGATA, Takamasa NONAKA, Seiji KURIHARA	
P-49	Synthesis and Properties of Red Phosphorescence Polymers with Iridium-Complexed Side Group and Photosensitive Moiety	101
	Minhyeon Song, Younghwan Kwon, Lee Soon Park, Yoon Soo Han	
P-50	Preparation of (gold-nanorod and azo-functionalized polymer) composite films and their photochemical properties	103
	Masatoshi Sakai, Yutaka Kuwahara, Tomonari Ogata, Takamasa Nonaka, Seiji Kurihara	
P-51	Green Emitting PLED Having Polymeric Host and Dopant in Emissive Layer	104
	Yoon Soo Han, Jeong Han Song, Younghwan Kwon, Youngjune Hur, Soon Hak Kim, Lee Soon Park	
P-52	Photoresponsive behavior of Azobenzene Liquid-Crystalline Elastomer Films with a Long Spacer	
	Jixiang Xu, Yanlei Yu, Tomiki Ikeda	

Banquet 19:00-21:00

KUSUNOKI KAIKAN in North Campus