

Daming Xu

CREOL, College of Optics and Photonics, University of Central Florida

4304 Scorpius St., Orlando, FL 32816, USA

Phone: (407)797-0652, Fax: (407)823-6880, Email: damingxu@knights.ucf.edu

<http://lcd.creol.ucf.edu/people/dxu/dxu.htm>

Research Interest

Liquid crystal, display devices, diffractive optics

Education

Ph.D. in Optics (Advisor: Prof. Shin-Tson Wu, GPA: 3.95/4.0) 08/2011 – Present
CREOL, College of Optics and Photonics, University of Central Florida, Orlando, FL
Dissertation: “Advanced Blue Phase Liquid Crystal Displays”

B.S. in Information Engineering (GPA: 87.6/100) 08/2007 – 06/2011
Chien-Shiung Wu Honor College, Southeast University, Nanjing, China

Research Experience

Research intern, Microsoft Co. – Redmond, WA (03/2015 – 09/2015)

❖ R&D of holographic technologies for human interactive devices

- Built hologram exposure setup and had 50+ times hologram recording experience
- Incorporated Kogelnik theory in Zemax and modeled optical performance of the display system

Research assistant, University of Central Florida – Orlando, FL (08/2011 – Present)

❖ Project leaders of two display projects sponsored by AU Optronics and ITRI (Taiwan):

- Developed low power, fast response and high performance fringe-field-switching (FFS) LCDs
- Developed high transmittance, low voltage, and hysteresis-free blue phase LCDs

Honors & Awards

Chinese Government National Merit Scholarship	2016
Graduate Dean's Dissertation Completion Fellowship, University of Central Florida	2016
SPIE D.J. Lovell Scholarship (the society's largest & most prestigious scholarship, one recipient worldwide)	2015
IEEE Orlando Section Outstanding Graduate Student Award (the only recipient)	2015
IEEE Orlando Section Graduate Scholarship	2015
SPIE Newport Research Excellence Award	2015
Distinguished Student Paper Award, SID International Symposium (three times)	2013 – 2015
Student Travel Grant Award, SID International Symposium	2014
Graduate Presentation Fellowship, University of Central Florida	2014
First place in Ph.D. Qualifying Examination, CREOL, University of Central Florida	2012
Graduate Research Fellowship, CREOL, University of Central Florida	2011
China Jiangsu Province Government Scholarship	2010
Academic Excellence Award, Southeast University	2009
Outstanding Student Award, Southeast University	2008

Book Chapters

1. **D. Xu**, F. Peng and S. T. Wu, "Polymer-Stabilized Blue Phase Liquid Crystals," in the book "Handbook of Visual Display Technology (2nd Edition)" (Springer, 2015).

Journal Publications

1. H. Chen, Y. Weng, **D. Xu**, N. V. Tabiryan and S. T. Wu, "Beam steering for virtual/augmented reality displays with a cycloidal diffractive waveplate," *Opt. Express* 24, 7287-7289 (2016).
2. Y. F. Lan, Y. Liu, P.J. Huang, **D. Xu**, et al., "Non-ideal optical isotropy of blue phase liquid crystal and their self-assembly on electrode surface," *Mol. Cryst. Liq. Cryst.* 610, 217-220 (2015).
3. **(Cover/featured article)** D. Franklin, Y. Chen, A. Vazquez-Guardado, S. Modak, J. Boroumand, **D. Xu**, S. T. Wu and D. Chanda, "Polarization-independent actively tunable colour generation on imprinted plasmonic surfaces," *Nature Commun.* 6, 7337 (2015).
4. **D. Xu**, et al., "A semi-empirical equation for the response time of in-plane switching liquid crystal display and measurement of twist elastic constant," *J. Appl. Phys.* 117, 203103 (2015).
5. J. Yuan, G. Tan, **D. Xu**, F. Peng and S. T. Wu, "Low-voltage and fast-response polymer-stabilized hyper-twisted nematic liquid crystal," *Opt. Mater. Express* 5, 1339-1347 (2015).
6. H. Chen, Z. Luo, **D. Xu**, F. Peng, S. T. Wu, et al. "A fast-response A-film-enhanced fringe field switching liquid crystal display," *Liq. Cryst.* 42, 537-542 (2015).
7. **D. Xu**, G. Tan and S. T. Wu, "Large-angle and high-efficiency tunable phase grating using fringe field switching liquid crystal," *Opt. Express* 23, 12274-12285 (2015).
8. **D. Xu**, H. Chen, S. T. Wu, et al. "A fringe field switching liquid crystal display with fast grayscale response time," *J. Disp. Technol.* 11, 353-359 (2015).
9. F. Peng, **D. Xu**, H. Chen and S. T. Wu, "A low voltage polymer network liquid crystal for infrared spatial light modulators," *Opt. Express* 23, 2361-2368 (2015).
10. **D. Xu**, F. Peng, H. Chen, J. Yuan, S. T. Wu, et al., "Image sticking in liquid crystal displays with lateral electric fields," *J. Appl. Phys.* 116, 193102 (2014).
11. H. Chen, F. Peng, Z. Luo, **D. Xu**, S. T. Wu, et al. "High performance liquid crystal displays with a low dielectric constant material," *Opt. Mater. Express* 4, 2262 (2014).
12. M. Xu, **D. Xu**, H. Ren, I. S. Yoo and Q. Wang, "An adaptive liquid lens with radial interdigitated electrode," *J. Opt.* 16, 105601 (2014).
13. **D. Xu**, J. Yuan, M. Schadt and S. T. Wu, "Blue phase liquid crystals stabilized by linear photopolymerization," *Appl. Phys. Lett.* 105, 081114 (2014).
14. Y. Liu, S. Xu, **D. Xu**, J. Yan, Y. Gao and S. T. Wu, "A hysteresis-free polymer-stabilized blue phase liquid crystal," *Liq. Cryst.* 41, 1339-1344 (2014).
15. **D. Xu**, J. Yan, J. Yuan, F. Peng, Y. Chen and S. T. Wu, "Electro-optic response of polymer-stabilized blue phase liquid crystals," *Appl. Phys. Lett.* 105, 011119 (2014).
16. Y. F. Lan, Y. Liu, P. J. Huang, **D. Xu**, C. Y. Tsai, C. H. Lin, N. Sugiura and S. T. Wu, "Non-ideal optical isotropy of blue phase liquid crystal," *Appl. Phys. Lett.* 105, 011903 (2014).
17. **(Invited paper, co-first author)** Z. Luo, **D. Xu** and S. T. Wu, "Emerging quantum-dot-enhanced LCDs," *J. Disp. Technol.* 10, 526-539 (2014). **Rated as "ESI Highly Cited Paper"**
18. J. Yan, **D. Xu**, H. C. Cheng, S. T. Wu, Y. F. Lan and C. Y. Tsai, "Turning film for widening the viewing angle of a blue phase liquid crystal display," *Appl. Opt.* 52, 8840-8844 (2013).
19. **D. Xu**, Y. Chen, Y. Liu and S. T. Wu, "Refraction effect in an in-plane-switching blue phase liquid crystal cell," *Opt. Express* 21, 24721-24735 (2013).
20. J. Yan, Y. Chen, **D. Xu** and S. T. Wu, "Angular dependent reflection of a monodomain blue phase liquid crystal," *J. Appl. Phys.* 114, 113106 (2013).
21. Y. Chen, **D. Xu**, S. T. Wu, S. Yamamoto and Y. Haseba, "A low voltage and submillisecond-response polymer-stabilized blue phase liquid crystal," *Appl. Phys. Lett.* 102, 141116 (2013).

22. Y. Liu, Y. F. Lan, H. Zhang, R. Zhu, **D. Xu**, S. T. Wu, et al. "Optical rotatory power of polymer-stabilized blue phase liquid crystals," *Appl. Phys. Lett.* 102, 131102 (2013).
23. **D. Xu**, L. Rao, C. D. Tu and S. T. Wu, "Nematic liquid crystal display with submillisecond grayscale response time," *J. Disp. Technol.* 9, 67-70 (2013).

Conference Proceedings

1. **D. Xu**, G. Tan, S. T. Wu, "Multi-angle beam steering for head-mounted displays." *SID Intl. Symp. Digest* (2016).
2. **D. Xu**, F. Peng, G. Tan, J. He and S. T. Wu, "A new single-cell measurement method for determining the twist elastic constant of liquid crystals," *SID Intl. Symp. Digest* (2016).
3. **D. Xu**, J. Yuan, M. Schadt and S. T. Wu, "High performance blue phase liquid crystal displays stabilized by linear photopolymers," *SID Intl. Symp. Digest* 46, 545-548 (2015).
4. **D. Xu**, H. Chen, S. T. Wu, et al. "Fast-response fringe field switching LCD with patterned common electrode," *SID Intl. Symp. Digest* 46, 652-655 (2015).
5. **D. Xu**, F. Peng, H. Chen, J. Yuan, S. T. Wu, et al. "Image sticking reduction of fringe field switching LCDs," *SID Intl. Symp. Digest* 46, 739-742 (2015).
6. (**Distinguished student paper**) H. Chen, Z. Luo, **D. Xu**, F. Peng, S. T. Wu, et al. "A fast-response A-film-enhanced fringe field switching LCDs," *SID Intl. Symp. Digest* 46, 739-742 (2015).
7. F. Peng, **D. Xu**, H. Chen and S. T. Wu, "A low-voltage and fast-response infrared spatial light modulator," *SID Intl. Symp. Digest* 46, 831-834 (2015).
8. J. Yuan, **D. Xu** and S. T. Wu, "An ultra-low voltage blue phase LCD for mobile applications," *SID Intl. Symp. Digest* 46, 1520-1523 (2015).
9. (**Invited talk**) **D. Xu**, J. Yuan, M. Schadt, J. Yan and S. T. Wu, "Stabilizing blue phase liquid crystals with linearly polarized UV light," *Proc. SPIE* 9384, 93840H-1 (2015).
10. (**Invited talk**) **D. Xu**, F. Peng and S. T. Wu, "Is polymer-stabilized blue phase liquid crystal ready for prime time?" 10th SPSJ International Polymer Conference (2014, Tsukuba, Japan).
11. (**Invited talk**) Z. Luo, Y. Chen, **D. Xu**, and S. T. Wu, "Is quantum-dot LCD ready for prime time?" *IEEE Photonics Conference*, 40-41 (2014).
12. (**Distinguished student paper**) **D. Xu**, Y. Chen, Y. Liu, S. T. Wu, et al. "Low-voltage and high-transmittance blue phase liquid crystal displays," *SID Intl. Symp. Digest* 45, 168-171 (2014).
13. Y. Liu, S. Xu, **D. Xu**, J. Yan and S. T. Wu, "A hysteresis-free polymer-stabilized blue-phase liquid crystal," *SID Intl. Symp. Digest* 45, 176-179 (2014).
14. (**Distinguished student paper**) **D. Xu**, L. Rao, C. D. Tu and S. T. Wu, "A nematic LCD with submillisecond gray-to-gray response time", *SID Intl. Symp. Digest* 44, 435-438 (2013).
15. Y. Liu, H. Zhang, R. Zhu, **D. Xu**, S. T. Wu, et al. "Enhancing the contrast ratio of blue phase LCDs," *SID Intl. Symp. Digest* 44, 188-191 (2013).

Patents

1. Y. F. Lan, **D. Xu**, C. Y. Tsai, S. T. Wu, N. Sugiura, "Liquid crystal devices," US patent (2016, pending).
2. J. Yan, **D. Xu**, H. C. Cheng, S. T. Wu, Y. F. Lan, C. Y. Tsai, "Optical film and display devices having the same," US Patent 9,121,999 B2 (Sep. 2015).

Leadership & Services

President, Society for Information Display Student Branch, UCF	2013 – 2014
Vice President, Society for Information Display Student Branch, UCF	2012 – 2013
President, Chinese Students & Scholars Association, UCF	2012 – 2013

Journal Reviewer

Optics Letters, Optics Express, Optical Material Express, Journal of Display Technology, Journal of the Society for Information Displays, Liquid Crystals, Applied Optics, Optical Materials, Journal of Applied Physics, Optical Engineering, Journal of Physics D, (~40 times review experience)

Research Tools

Techwiz LCD, DIMOS, MATLAB, Zemax, LightTools