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**Education**

<b>University of Minnesota</b>	<b>2001-2007</b>
Minneapolis, MN	
Doctor of Philosophy, Physics	
<b>California Institute of Technology</b>	<b>1997-2001</b>
Pasadena, CA	
Bachelor of Science, Physics	

**Teaching Experience**

<b>Azusa Pacific University</b>	<b>2007-Present</b>
Azusa, CA	
<b>Assistant Professor</b>	
<b>Ridgewater College</b>	<b>2007</b>
Wilmar, MN	
<b>Adjunct Faculty</b>	

**Awards**

<b>Outstanding Teaching Assistant Award</b>	<b>2004</b>
School of Physics and Astronomy, University of Minnesota	

**Publications:**

Nonplanar tilts in very thin smectic films of one liquid-crystal compound

B. K. McCoy, Z. Q. Liu, S. T. Wang, LiDong Pan, Shun Wang, J. W. Goodby, and C. C. Huang, Phys. Rev. E **79** 061702 (2009)

Recovery of a reversed phase sequence in one ternary liquid-crystal-mixture system

Shun Wang, LiDong Pan, B. K. McCoy, S. T. Wang, H. T. Nguyen and C. C. Huang, Phys. Rev. E **79** 021706 (2009)

Effects of doping on an unusual smectic- $C^*_\alpha$ -smectic- $C^*_{F12}$ -smectic- $C^*$  phase sequence

B. K. McCoy, Z. Q. Liu, S. T. Wang, LiDong Pan, Shun Wang, H. T. Nguyen, R. Pindak and C. C. Huang, Phys. Rev. E **77** 061704 (2008)

Polarization studies of resonant forbidden reflections in liquid crystals

P. Fernandes, P. Barois, S. T. Wang, Z. Q. Liu, B. K. McCoy, C. C. Huang, R. Pindak, W. Caliebe, and H. T. Nguyen, Phys. Rev. Lett. **99** 227801 (2007)

Unique pitch evolution in the smectic- $C^*_\alpha$  phase

Z. Q. Liu, B. K. McCoy, S. T. Wang, R. Pindak, W. Caliebe, P. Barois, P. Fernandes, H. T. Nguyen, C. S. Hsu, Shun Wang, and C. C. Huang, Phys. Rev. Lett. **99** 077802 (2007)

Smectic- $C^*_\alpha$  phase with two coexistent helical pitch values and a first-order smectic- $C^*_\alpha$  to smectic- $C^*$  transition

B. K. McCoy, Z. Q. Liu, S. T. Wang, R. Pindak, K. Takekoshi, K. Ema, A. Seed, and C. C. Huang, Phys. Rev. E **75** 051706 (2007)

Smectic- $C^*_\alpha$  – Smectic- $C^*$  phase transition and critical point in binary mixtures

Z. Q. Liu, S. T. Wang, B. K. McCoy, A. Cady, R. Pindak, W. Caliebe, K. Takekoshi, K. Ema, H. T. Nguyen and C. C. Huang, Phys. Rev. E **74** 030702(R) (2006)

Optical studies on the surface-induced tilted layer in freestanding films of two no-layer-shrinkage liquid crystal compounds

S. T. Wang, X. F. Han, Z. Q. Liu, B. K. McCoy, and C. C. Huang, Phys. Rev. E **74** 031707 (2006)

Investigations of nanoscale helical pitch in smectic- $C^*_\alpha$  and smectic- $C^*$  phases of a chiral smectic liquid crystal using differential optical reflectivity measurements

V. P. Panov, B. K. McCoy, Z. Q. Liu, J. K. Vij, J. W. Goodby, and C. C. Huang Phys. Rev. E **74** 011701 (2006)

Surface-induced multiple reentrant transitions

B. K. McCoy, Z. Q. Liu, S. T. Wang, V. P. Panov, J. K. Vij, J. W. Goodby and C. C. Huang, Phys. Rev. E **73**, 041704 (2006)

Optical and resonant x-ray diffraction studies confirm a  $SmC_{F12}^*$ - $SmC^*$  liquid crystal phase sequence reversal

S. T. Wang, Z. Q. Liu, B. K. McCoy, R. Pindak, W. Caliebe, H. T. Nguyen, and C. C. Huang, Phys. Rev. Lett. **96**, 097801 (2006)

Vibrating quartz crystal studies of wall-film superfluidity in liquid  $^3\text{He}/^4\text{He}$  mixtures near the tricritical concentration

B. J. Andersson, W. Deng, J. Lee, B. K. McCoy and W. Zimmermann Jr., Jour. Low Temp. Phys. **134** 770 (2004)

### **Presentations:**

Probing the Elusive Orientational Degree of Freedom in Liquid Crystal Molecules

B. K. McCoy, National Synchrotron Light Source at Brookhaven National Laboratory (2006)

Liquid Crystals from Optical Switches to Frustrated Mesophases

B. K. McCoy, Minnesota State University-Mankato, Department of Physics and Astronomy Colloquium (2006)

Detailed Characterization of Five Structure Transitions in one Liquid Crystal Compound

B. K. McCoy, Z. Q. Liu, S. T. Wang, V. P. Panov, J. W. Goodby and C. C. Huang; 2006 International Liquid Crystals Conference

Introductory Physics through Inquiry-based Labs

B. K. McCoy and B. Batell, Classrooms of the Future XI (2005)

Introductory Physics through Inquiry-based Labs

B. K. McCoy and B. Batell, Minnesota Area Association of Physics Teachers Spring Meeting 2005

Inquiry-based Honors Physics Labs

Peter Border, Brian Batell, and B. McCoy, ACM Siggraph 2005: Educators Program

**Associations**

American Physical Society

American Association of Physics Teachers