

## CURRICULUM VITAE

### KENDALL M. HURST

Department of Chemical Engineering  
Auburn University  
212 Ross Hall  
Auburn, AL 36849  
Phone (334) 844-2071  
Fax (334) 844-2063  
Email khurst@auburn.edu

**Education:** Ph.D. in Chemical Engineering, Auburn University, 2010  
M.S. in Chemical Engineering, Oklahoma State University, 2005  
B.S. in Chemical Engineering, University of Oklahoma, 2002

**Research interests:** Supercritical fluid and gas-expanded liquid technology, biochemical reaction engineering, applications of inorganic nanoparticles, alternative energy and biomass conversion, chemical engineering curriculum and education

#### Professional experience:

2005- Graduate Research Assistant, Department of Chemical Engineering, Auburn University, Auburn, AL  
2/2008 Guest Research Assistant, Center for Neutron Research, National Institute for Standards and Technology, Gaithersburg, MD  
2003-2005 Graduate Research Assistant, School of Chemical Engineering, Oklahoma State University, Stillwater, OK  
2001-2002 Undergraduate Research Assistant, School of Chemical, Biological and Materials Engineering, University of Oklahoma, Norman, OK

#### Honors and awards:

2009 Space & Missile Defense Working Group Fellowship Award, NDIA Tennessee Valley Chapter  
2005 Lawrence D. Harrison Fellowship, Auburn Chemical Engineering  
2000, 2001 Ray G. Collins Engineering Scholar, Oklahoma Chemical Engineering

### Teaching experience:

Summer 2008	Macro-Assembly of Nanomaterials, Guest Lecturer
Spring 2006	Principles of Chemical Engineering, TA & Lecturer
Fall 2005	Introduction to Chemical Engineering, TA & Lecturer

### Professional activities:

2006 -	American Institute of Chemical Engineers
2006 -	Webmaster, Roberts Research Group, Auburn Chemical Engineering

### Publications in refereed journals:

1. Hurst, K. M., and R. S. Lewis, "Carbon monoxide partial pressure effects on the metabolic process of syngas fermentation," *Biochem. Eng. J.* (2009), in press.
2. Hurst, K. M., C. B. Roberts and W. R. Ashurst, "A New Method to Determine Adhesion of Cantilever Beams Using Beam Height Experimental Data," *Tribol. Lett.* **35**, 9-15 (2009).
3. Hurst, K. M., C. B. Roberts and W. R. Ashurst, "A Gas-Expanded Liquid Nanoparticle Deposition Technique for Reducing the Adhesion of Silicon Microstructures," *Nanotechnol.* **20**, 185303, 1-9 (2009).
4. Anand, M., S.-S. You, K. M. Hurst, S. R. Saunders, C. L. Kitchens, W. R. Ashurst, and C. B. Roberts, "Thermodynamic Analysis of Nanoparticle Size Selective Fractionation Using Gas Expanded Liquids," *Ind. Eng. Chem. Res.* **47**, 553-559 (2008).

### Book chapters and proceedings:

1. Hurst, K. M., W. R. Ashurst and C. B. Roberts, "A Gas-Expanded Liquid Nanoparticle Deposition and Supercritical Drying Process to Reduce Adhesion of Microstructures," *Proc. 9<sup>th</sup> Int. Symp. Supercrit. Fluids*, Paper C-62, 1-6 (2009).
2. Kitchens, C. L., C. B. Roberts, J. Liu, W. R. Ashurst, M. Anand, G. Von White II, K. M. Hurst, and S. R. Saunders, "Application of Gas-eXpanded Liquids for Nanoparticle Processing: Experiment and Theory," in Gas Expanded Liquids and Near Critical Media: Green Chemistry and Engineering, K. W. Hutchenson, A. M. Scurto and B. Subramaniam (eds.), ACS Symposium Series, 1006, Oxford University Press, New York, pp. 290-308 (2009).
3. Hurst, K. M., C. B. Roberts and W. R. Ashurst, "Reduced Microstructure Adhesion Provided by Gas-Expanded Liquid Deposited Gold Nanoparticles," *Proc. ASME/STLE Int. Joint Tribol. Conf.*, Paper IJTC2008-71253, 1-3 (2008).

- Hurst, K. M., S. R. Saunders, J. Liu, M. Anand, S.-S. You, and C. B. Roberts, "Metal and Semiconductor Deposition and Size Fractionation Using CO<sub>2</sub>-Expanded Liquids and Supercritical CO<sub>2</sub> Processing," *Proc. Super Green 2007*, Paper KL-12, 1-8 (2007).

**Conference presentations (speaker):**

- Hurst, K. M., N. Ansari, C. B. Roberts and W. R. Ashurst, "Nanoparticle/Self-Assembled Monolayer Composite Coatings for MEMS Reliability," *AIChE National Meeting*, Nashville, TN, November 8-13, 2009.
- Hurst, K. M., W. R. Ashurst and C. B. Roberts, "A Gas-Expanded Liquid Nanoparticle Deposition and Supercritical Drying Process to Reduce Adhesion of Microstructures," *9<sup>th</sup> International Symposium on Supercritical Fluids*, Arachon, France, May 18-20, 2009.
- Saunders, S. R., K. M. Hurst, W. R. Ashurst, and C. B. Roberts, "Efficient and Scalable Nanoparticle Separation and Deposition Processing Using the Tunable Properties of CO<sub>2</sub> Expanded Liquid Solutions," *237<sup>th</sup> ACS National Meeting*, Salt Lake City, UT, March 22-26, 2009.
- Hurst, K. M., C. B. Roberts and W. R. Ashurst, "Microtribology Control Provided by CO<sub>2</sub>-Expanded Liquid Nanoparticle Deposition," *AIChE National Meeting*, Philadelphia, PA, November 16-21, 2008.
- Hurst, K. M., C. B. Roberts and W. R. Ashurst, "Reduced Microstructure Adhesion Provided by Gas-Expanded Liquid Deposited Gold Nanoparticles," *ASME/STLE International Joint Tribology Conference*, Miami, FL, October 20-22, 2008.
- Hurst, K. M., C. B. Roberts and W. R. Ashurst, "Colloidal Gold Nanoparticles Deposited via CO<sub>2</sub>-Expanded Liquids for Improved Micromechanism Reliability," *82<sup>nd</sup> ACS Colloids & Surface Science Symposium*, Raleigh, NC, June 15-18, 2008.
- Hurst, K. M., C. B. Roberts and W. R. Ashurst, "Gold Nanoparticle Deposition via Gas-Expanded Liquids for Improved Micromachine Reliability," *Particles 2008: Particle Synthesis, Characterization, and Particle-Based Advanced Materials*, Orlando, FL, May 10-13, 2008.
- Saunders, S. R., K. M. Hurst, W. R. Ashurst, and C. B. Roberts, "Metal and Semiconductor Nanoparticle Deposition and Separation Using CO<sub>2</sub>-Expanded Liquids," *Particles 2008: Particle Synthesis, Characterization, and Particle-Based Advanced Materials*, Orlando, FL, May 10-13, 2008.
- Saunders, S. R., K. M. Hurst, W. R. Ashurst, and C. B. Roberts, "Using the Tunable Properties of Gas Expanded Liquids to Control Nanoparticle Deposition and Separation Processes," *ACS National Meeting & Exposition*, New Orleans, LA, April 6-10, 2008.

10. Hurst, K. M., S. R. Saunders, J. Liu, M. Anand, S.-S. You, and C. B. Roberts, "Metal and Semiconductor Deposition and Size Fractionation Using CO<sub>2</sub>-Expanded Liquids and Supercritical CO<sub>2</sub> Processing," *Super Green 2007: 5<sup>th</sup> International Symposium on Supercritical Fluids*, Seoul, South Korea, November 28-December 1, 2007.
11. Hurst, K. M., W. R. Ashurst and C. B. Roberts, "Investigating the Effect of Gold Nanoparticle Deposition via CO<sub>2</sub>-Expanded Liquids on Micromachine Reliability," *AICHE National Meeting*, Salt Lake City, UT, November 4-9, 2007.
12. Anand, M., S.-S. You, K. M. Hurst, S. R. Saunders, C. L. Kitchens, W. R. Ashurst, and C. B. Roberts, "Thermodynamic Analysis of the Gas Expanded Liquid Nanoparticle Size Separation Process," *AICHE National Meeting*, Salt Lake City, UT, November 4-9, 2007.
13. Bhosale, P., K. M. Hurst, C. B. Roberts, and H. A. Stretz, "CO<sub>2</sub>-Expanded Liquid Deposition of Organoclay Thin Films," *AICHE National Meeting*, Salt Lake City, UT, November 4-9, 2007.
14. Williams, M., D. D. Nalayanda, K. M. Hurst, A. Jacobus, and D. W. Schmidtke, "Membrane Tether Formation by Rolling Neutrophils on E-Selectin," *Biomedical Engineering Society Meeting*, Houston, TX, October 23-26, 2002.
15. Williams, M., D. D. Nalayanda, K. M. Hurst, A. Jacobus, and D. W. Schmidtke, "Leukocyte Membrane Tether Formation," *2002 Keystone Symposium: Molecular Mechanisms of Leukocyte Trafficking*, Steamboat Springs, CO, April 9-14, 2002.