

Chen Guo

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Education

Ph.D. Chemical and Biological Engineering

December 2013

Colorado State University, Fort Collins, CO

Dissertation: 'The development of a modular tethered-micelle hydrogel system using prestructured block copolymer melts'

Research Advisor: Dr. Travis S. Bailey

B.S. Polymer Science and Engineering

July 2006

Tsinghua University, Beijing, China

Thesis: 'Porous polymer latex particles through emulsion polymerization'

Research Advisor: Dr. Chengyou Kan

Research Experience

Colorado State University, Fort Collins, CO

Graduate research assistant

August 2006 - present

- Optimized synthetic methodology for narrow MW distributed high molecular weight PEO containing block copolymers
- Synthesized PS-*b*-PEO-*b*-PS triblock copolymers
- Developed fractionation protocol to separate diblock and triblock copolymers from mixtures
- Prepared hydrogels with pre-structured block copolymers
- Studied rheological properties of melt polymers
- Investigated thermo-sensitivity of the hydrogels
- Explored tensile properties of hydrogels on a TA ARES rheometer
- Functionalized hydrogels for post swelling modification using click chemistry
- Made further effort on hydrogel "pore size" study by addition and degradation of added PLA block
- Conducted an investigation into membrane potentials of the hydrogels
- Improved synthesis route for low PDI PNIPAM
- Collaborated with Dr. Douglas Gin's group (Univ. Colorado Boulder) on ionic liquid gels for gas separation
- Mentored two undergraduate students working on room temperature ionic liquid gels and modification on hydrogels. The accomplished result will be published in two journal articles

Tsinghua University, Beijing, China

January 2006 - June 2006

Undergraduate Research Assistant

- Prepared PS-PMMA hollow/porous polymer particles via emulsion polymerization
- Investigated pore-forming agents and their kinetics through TEM

Tsinghua University, Beijing, China

March 2005 - January 2006

Student Research Training (SRT) participant

- Synthesized and characterized macroporous polymer beads for wastewater treatment
- Researched on the synthesizing method of UV light absorber (UV-214)

Publications - Referred Journal Articles

1. **Chen Guo**, Jackson T. Lewis, Vincent F. Scaffani, Miriah M. Schwartz and Travis S. Bailey, 'Tailoring mesh-size and swelling ratio independently in tethered-micelle hydrogel networks through click chemistry' (in preparation)

2. **Chen Guo** and Travis S. Bailey, 'Controlling the distances between tethered-micelle in hydrogels from pre-structured AB diblock and ABA triblock copolymer melt blends', *Macromolecules* (in preparation)
3. **Chen Guo** and Travis S. Bailey, 'Highly distensible nanostructured elastic hydrogels from AB diblock and ABA triblock copolymer melt blends', *Soft Matter*, 6(19), 4807-4818, 2010

Publications - Non-Refereed Journal Articles

1. Travis S. Bailey, Vincent F. Scalfani and **Chen Guo**, *ACS PMSE Preprints*, 'Control of Porosity, Modulus, and Structure in Micellar Hydrogel Networks', 105, 408, 2011
2. **Chen Guo**, Jackson T. Lewis, Miriah M. Schwartz and Travis S. Bailey, 'Strategies for Independent Mesh-size and Swelling Ratio Control in Tethered-Micelle Hydrogel Networks', *ACS PMSE Preprints*, 105, 252-253, 2011
3. **Chen Guo** and Travis S. Bailey, 'Tailoring Nanostructure in Tethered-Sphere Hydrogel Networks', *ACS POLY Preprints*, 52(1), 2011
4. **Chen Guo** and Travis S. Bailey, 2010, 'Tailoring Nanostructure in Highly Elastic Block Copolymer-based Hydrogel Networks', *ACS POLY preprints*, 51(2), 147, 2010
5. **Chen Guo**, Vicent F. Scalfani and Travis S. Bailey, 'Flexible-matrix nanofiltration membranes with externally tunable porosities', *ACS PMSE Preprints*, 102, 359-360, 2010
6. **Chen Guo** and Travis S. Bailey, 2009, 'Thermo-Sensitive Nanostructured Hydrogels Based on Block Copolymer Self-Assembly', *ACS PMSE Preprints*, 101, 766-767, 2009

Presentations

1. Poster presentation, 'Strategies for independent mesh-size and swelling ratio control in tethered-micelle hydrogel networks', *ACS Fall 2011 National Meeting & Exposition*, Denver, CO, August 29
2. Oral presentation, 'Tailoring nanostructure in tethered-sphere hydrogel networks', *ACS Spring 2011 National Meeting & Exposition*, Anaheim, CA, March 31
3. Oral presentation, 'Thermo-sensitive nanostructured hydrogels based on block copolymer self-assembly', *ACS Fall 2009 National Meeting & Exposition*, Washington, DC, August 16

Teaching Assistant Experience

Colorado State University, Fort Collins, CO

Graduate teaching assistant

Polymer Science and Engineering (CBE514)

Spring 2011

Material and Energy Balances (CBE201)

Fall 2010, 2009, 2007, 2006

Momentum and Heat Transfer Lab (CBE333)

Spring 2010

Thermodynamic Process Analysis (CBE210)

Spring 2009

Professional Memberships

American Chemical Society (ACS) 2009 2010 2011

American Association for Advancement of Science (AAAS) 2009

American Physical Society (APS) 2007