

Abigail L. Banaszek

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EDUCATION

Ph.D. Candidate, Chemical and Biological Engineering **Expected May 2012**
University of Colorado at Boulder, Boulder, CO
Advisor: Dr. Kristi S. Anseth

Bachelor of Science, Chemical Engineering **May 2007**
Clemson University, Clemson, SC

RESEARCH EXPERIENCE

Doctoral Research **January 2008 – Present**
Department of Chemical and Biological Engineering
University of Colorado, Boulder, CO *Advisor:* Dr. Kristi S. Anseth

- Control β -cell and islet aggregation to produce uniform cell clusters
- Incorporate extra-cellular membrane proteins into cell aggregates to increase function and viability

Undergraduate Research Assistant **September 2005 – May 2007**
Department of Chemical and Biomolecular Engineering
Clemson University, Clemson, SC *Advisor:* Dr. S. Michael Kilbey II

- Research co-polymerization and testing techniques for polymers
- Rigorous synthesis of novel biphymers using free-radical polymerization
- Characterization using NMR, IR, and rheology

Chemical Engineering Co-op Student **May – August 2003**
Michelin Americas Research and Development Center
Michelin North America Tire Company, Greenville, SC

- Investigate the correlation among contact angles, adhesion, and surface characteristics
- Research effect of heat and strain on the properties of textile materials in tires
- Monitor physical property changes with surface treatments – polymer swelling, strength, etc.

INDUSTRIAL EXPERIENCE

Environmental Engineering Co-op Student **May – August 2007**
Smurfit-Stone Container Corporation, Fernandina Beach, FL

- Monitor and test wastewater throughout plant and at effluent discharge
- Ensure water quality complies with local, state, and federal standards
- Help implement erosion control project for sensitive tidal river area

Process Engineering Co-op Student **January 2004 – July 2006**
Michelin North America Tire Company, Sandy Springs, SC

- Alternating semester co-op, full and part-time student employee
- Oversee product quality, process efficiency, and productivity of a production line
- Conduct quality investigations and respond to customer complaints

- Investigate capability, accessibility, and possibility of transitioning a testing machine from research applications to daily production use
- Protocol documentation and instruction for new test machine in the production facility
- Coordinate and evaluate production procedures of multiple facilities for productivity and product quality improvement
- Evaluate, implement, document and instruct on use of new machines in the research facility
- Characterize, evaluate and document affects of supplier changes on product properties
- Contribute to capacity improvement and throughput optimization of a production line

TEACHING EXPERIENCE

Teaching Assistant

August – December 2007

Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO

General Chemistry for Engineers

- Prepared weekly recitation lectures, problem solving sessions, and quizzes
- Instructed students with laboratory experiments and ensured student safety
- Graded lab reports, quizzes, homework, etc. and held office hours

ACTIVITIES

- Group Leader, Expanding Your Horizons 2008-2009
- Graduate Student Representative, Department of Chemical and Biological Engineering 2008-2009
- Volunteer, Senior Day 2008
- Member, American Institute of Chemical Engineers
- Volunteer, Boulder Homeless Shelter
- Volunteer, Habitat for Humanity

RELEVANT SKILLS

- Cell culture
- Microscopy
- Solution rheology
- Photolithography
- Microsoft Office: Word, PowerPoint, Excel

RESEARCH PRESENTED

Barringer, JE, JM Messman, **AL Banaszek**, HM Meyer III, SM Kilbey, II. “Immobilization of Biomolecules on Poly(vinylidimethylazlactone)-Containing Surface Scaffolds”, *Langmuir*, 2009, 25(1), 262-268.

Kloxin AM, JA Benton, **AL Banaszek**, and KS Anseth, “Controlled photolytic degradation of PEG-based hydrogel surfaces to examine the effect of stiffness on valvular interstitial cells,” *World Biomaterials Congress International Meeting*, May 2008, Amsterdam, The Netherlands. Oral presentation.

Messman, JM, **AL Banaszek**, J Barringer, JW Mays, SM Kilbey, II. “Synthesis, Assembly, and Bio-functionalization of Stimuli-Responsive Polymer Brushes”, in *Proceedings of the 34th Annual International Waterborne, High-Solids and Powder Coatings Symposium*, 2007, 77-88.

Messman, JM, **AL Banaszek**, J Barringer, JW Mays, SM Kilbey, II. “Synthesis, Assembly, and Bio-functionalization of Stimuli-Responsive Polymer Brushes”, presented at the 34th International Waterborne, High-Solids and Powder Coatings Symposium. New Orleans, LA. February 2007.

Messman, JM, **AL Banaszek**, RH Huyck, M Osa, JM Pickel, JW Mays, SM Kilbey, II. “Design, Synthesis, and Characterization of Vinyl-Dimethyl Azlactone-Containing (Co)Polymers”, in *preparation* (2007).