

Curriculum Vitae for **Emily Pentzer, PhD**  
Postdoctoral Associate  
Emrick Group, UMass Amherst  
Polymer Science and Engineering Department  
120 Governors Dr.  
Amherst, MA 01003

epentzer@polysci.umass.edu

## Education

Northwestern University, Evanston, IL Sept 05-June 10

- Doctorate of Philosophy from the Department of Chemistry
- GPA: 3.93/4.0

Butler University, Indianapolis, IN Aug 01-May 05

- Bachelor of Science in Chemistry, Highest Honors in Chemistry, summa cum laude
- Chemistry GPA: 3.96/4.0 Overall GPA: 3.90/4.0

## Research Experience

*University of Massachusetts Amherst, Postdoctoral research* July 2010-present  
Research in organic, polymer, and nanoparticle synthesis. Project title: *Novel materials and assemblies in hybrid bulk heterojunction solar cells* (Advisor: Prof. Todd Emrick)

*Northwestern University, Graduate research* Sept 05-June 10  
Research in organic synthesis and polymer chemistry. Thesis title: *RCM and ROMP: Metathesis routes to novel monomers and degradable polymers* (Advisor: Prof. SonBinh T. Nguyen)

*Butler University, Undergraduate research* Aug 03-June 04, Aug 04-Aug 05  
• Research in organic chemistry. Thesis title: *Isolation and identification of compounds of caramelized carbohydrates* (Advisor: Prof. Anne M. Wilson)  
• Research in organometallic chemistry. Work focused on developing an undergraduate teaching lab based on microwave catalyzed reactions of carbenes. (Advisor: Prof. Stacy A. O'Reilly)

*University of Massachusetts Amherst, Undergraduate research* June 04-Aug 04  
Research in polymer and materials chemistry. Project title: *Synthesis and functionalization of silsesquioxane-based nanoparticles* (Advisor: Prof. Todd Emrick)

## Selected Awards & Honors

- Northwestern University PLU Gelewitz Award for outstanding senior graduate student, 2009
- National Science Foundation Graduate Research Fellow, 2006-2009
- Butler University Corrine Welling Scholarship, 2005-2006
- Eli Lilly Science Scholar, 2003-2005
- Butler University Outstanding Senior Chemistry Student, 2004-2005
- Butler University Outstanding Junior Chemistry Student, 2003-2004
- Butler University Outstanding Sophomore Chemistry Student, 2002-2003

## Teaching Experience

### Northwestern University

- Undergraduate Lab Mentor May 07-May 10  
Responsible for guiding undergraduates (4 total) on individual research projects.
- Teaching Assistant/Tutor for undergraduate organic chemistry laboratory Sept 05-June 06
- Teaching Assistant for graduate-level class: Mechanisms of Organic Reactions Fall 06

### Butler University

- Teaching Assistant for organic chemistry laboratory Aug 03-May 05
- Tutor in chemistry and math

## Publications

- (1) Solution Assembly of Conjugated Materials for Continuous Pathways in Electronically Active Composites. **Pentzer, Emily**; Emrick, Todd. *Nature Materials Asia*. *Accepted*.
- (2) Organic Donor-Acceptor Shish-Kebab Crystals by Heterogeneous Nucleating Crystallization of P3HT on Perylene Diimide Crystals. Bu, Laju; **Pentzer, Emily**; Bokel, Felicia; Emrick, Todd; Hayward, Ryan. *ACS Nano*, **2012**, *6*, 10924-10929.
- (3) Photoluminescence Spectra of Isolated Extended P3HT Nanofibers: Evidence for Multiple H- and J-Aggregate Domains. Baghgar, Mina; Labastide, Joelle; Bokel, Felicia; Dujovne, Irene; McKenna, Aidan; Barnes, Austin; **Pentzer, Emily**; Emrick, Todd; Hayward, Ryan; Barnes, Michael. *Journal of Physical Chemistry Letters*, **2012**, *3*, 1674-1679.
- (4) Solution-Assembled Fibrils of End-Functionalized P3HT for Directed Attachment of CdSe Nanoparticles. **Pentzer, Emily**; Bokel, Felicia, Hayward, Ryan; Emrick, Todd. *Advanced Materials*, **2012**, *24*, 2254-2258.
- (5) Sterically-Stabilized Nanoparticles in Solutions and at Interfaces. Miesch, Caroline; **Pentzer, Emily**; Emrick, Todd. Submitted as a chapter in *Comprehensive Polymer Science*.
- (6) Assembly of Poly(3-Hexylthiophene)/CdSe Hybrid Nanowires by Co-crystallization. Bokel, Felicia; Sudeep, P.; **Pentzer, Emily**; Emrick, Todd; Hayward, Ryan. *Macromolecules*, **2011**, *44*, 1768-1770.
- (7) Substrate Encapsulation: An Efficient Strategy for the RCM Synthesis of Unsaturated  $\epsilon$ -Lactones. **Pentzer, E. B.**; Gadzikwa, T.G.; Nguyen, S.T. *Organic Letters*, **2008**, *10*, 5613-5615. (Highlighted in organic chemistry portal: <http://www.organic-chemistry.org/Highlights/2009/15June.shtml>)
- (8) Bioactive and Therapeutic ROMP Polymers. Smith, D.; **Pentzer, E. B.**; Nguyen, S. T. *Polymer Reviews*, **2007**, *47*, 419-459.
- (9) The Distribution of Fox Squirrel (*Sciurus niger*) Leaf Nests within Forest Fragments in Central Indiana. Salsbury, C. M.; Dolan, R. W.; **Pentzer, E. B.** *American Midland Naturalist*, **2004**, *151*, 369-377.

## Presentations

- (1) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. Cleveland, Ohio. **February 2013**. Oral Presentation.
- (2) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. Athen, Georgia. **January 2013**. Oral Presentation.
- (3) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. Orono, Maine. **January 2013**. Oral Presentation.

- (4) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. St. Louis, Missouri. **January 2013**. Oral Presentation.
- (5) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. Socorro, New Mexico. **December 2012**. Oral Presentation.
- (6) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily. Seattle, Washington. **November 2012**. Oral Presentation.
- (7) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily; Bokel, Felicia; Hayward, Ryan; Emrick, Todd. Washington D.C. **April 2012**. Oral Presentation.
- (8) Solution-based assembly of functionalized P3HT for the templated organization of n-type materials. Pentzer, Emily; Bokel, Felicia; Hayward, Ryan; Emrick, Todd. Meeting of the American Chemical Society. San Diego, CA. **March 2012**. Oral Presentation.
- (9) Self-assembly of conjugated polymers and nanoparticles for the controlled morphology of bulk heterojunction solar cells. Pentzer, Emily; Bokel, Felicia; Hayward, Ryan; Emrick, Todd. Center for Nanophase Materials Science. Oak Ridge National Lab, Tennessee. **September 2011**. Poster presentation.
- (10) Nanocomposites for solar cell applications. Pentzer, Emily; Bokel, Felicia; Hammer, Brenton; Page, Zachariah; Hayward, Ryan; Emrick, Todd. Energy Frontiers Research Summit and Forum. Washington D.C. **May 2011**. Poster presentation.
- (11) Harvesting solar energy using bulk heterojunction solar cells. Pentzer, Emily.; Emrick, Todd. Clean Energy Connections Conference and Opportunity Fair. Springfield, MA. **October 2010**. Poster presentation.
- (12) Efforts towards biodegradable ROMP-based polymers. Pentzer, Emily; Nguyen, Sonbinh T. Gordon Research Conference on Macromolecular Materials. Ventura, CA. **January 2009**. Poster presentation.
- (13) Efforts towards biodegradable ROMP-based polymers. Pentzer, Emily; Nguyen, Sonbinh T. Gordon Graduate Research Symposium on Macromolecular Materials. Ventura, CA. **January 2009**. Oral presentation.
- (14) RCM and ROMP: Metathesis routes to unsaturated monomers and polymers. Pentzer, Emily; Nguyen, Sonbinh T. NATO Advanced Summer Institute on New Materials via Metal Mediated Macromolecular Engineering: From Complex to Nano Structures. Antalya, Turkey. **September 2008**. Oral presentation.
- (15) Synthesis of 7-membered lactones via Lewis acid assisted ring-closing metathesis. Pentzer, Emily; Nguyen, Sonbinh T. Butler University seminar lecturer. Indianapolis, IN. **September 2007**. Oral presentation.
- (16) 7- and 8-Membered lactones via Lewis acid-assisted ring-closing metathesis. Pentzer, Emily; McCallaugh, Martin; Schatz, George C.; Nguyen, Sonbinh T. Meeting of the American Chemical Society. Chicago, IL. **March 2007**. Poster presentation.
- (17) Lewis acid-assisted ring-closing metathesis. Pentzer, Emily; Nguyen, Sonbinh T. Industrial Associates of Northwestern University. Evanston, IL. **May 2007**. Poster presentation.

### **Relevant Affiliations**

- Safety Warden Nguyen Lab, 2006-2009
- NMR Super-user representing Nguyen Lab, 2007-2009
- Graduate Liaison in Chemistry, 2008-2009
- Nguyen lab Secretary, 2006-2009

- Phi Lambda Upsilon (Department Liaison 1 yr, Vice President 1 yr) Honorary Chemical Society, since 2007
- American Chemical Society (Organic Division), since 2006
- American Chemical Society (Polymeric Materials: Science and Engineering), since 200
- Iota Sigma Pi National Honor Society of Women in Chemistry, since 2004
- Editor for DOE Energy Frontier Research Center Newsletter, 2012-2013