

Emily Pentzer, PhD

Assistant Professor

Department of Chemistry, Case Western Reserve University

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Education:

PhD: Northwestern University (Evanston, IL): August 2005-May 2010. Thesis title: *RCM and ROMP: Metathesis routes to novel monomers and degradable polymers* (Advisor: Prof. SonBinh T. Nguyen)

B.S. (highest honors in chemistry, summa cum laude): Butler University (Indianapolis, IN): Aug 2001-May 2005. Thesis title: *Isolation and identification of compounds in caramelized carbohydrates* (Advisor: Anne Wilson)

Professional Experience

Assistant Professor of Chemistry, Case Western Reserve University: July 2013-Present

Postdoctoral Associate, University of Massachusetts Amherst Polymer Science and Engineering, July 2010-May 2013. Project title: Synthesis and assembly of n-type and p-type materials for organic photovoltaic applications (Advisor: Todd Emrick)

Teaching

CHEM435: Synthetic Methods in Organic Chemistry (CWRU: Fall 2013, Fall 2014)

CHEM397: Undergraduate Independent Research (CWRU: Fall 2013, Spring 2014)

CHEM324: Honors Organic Chemistry (CWRU: Spring 2014)

Selected Awards & Honors

- CWRU Carl Wittke Award for Undergraduate Teaching, nominee 2014
- Northwestern University Gelewitz Award for outstanding senior chemistry 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 Chemistry Student, 2003, 2004, 2005

Publications

- (1) Polymer Composites for Thermoelectric Applications. McGrail, B.T., Sehirlioglu, A.; **Pentzer, E.** *submitted.*
- (2) Rapid Covalent Functionalization of Graphene Oxide in Water. McGrail, B. T.; Rodier, B. J.; **Pentzer, E.** *submitted.*

- (3) Morphology-Dependent Electronic Properties in Cross-linked (P3HT-b-P3MT) Block Copolymer Nanostructures. Baghgar, M.; Barnes, A.M.; **Pentzer, E.**, Wise, A.J.; Emrick, T.; Dinsmore, T.; Barnes, M.D. *ASAP at ACSNano*.
- (4) Preparation of Low Band Gap Fibrillar Structures by Solvent Induced Crystallization. Wang, H.W.; **Pentzer, E.B.**; Emrick, T.; Russell, T. *ACS Macro Letters*, **2014**, 3, 30-34.
- (5) Cross-Linked Functionalized Poly(3-hexylthiophene) Nanofibers with Tunable Excitonic Coupling. Baghar, M.; **Pentzer, E.**; Wise, Adam; Labastide, Joelle; Emrick, Todd; Barnes, Mike. *ACS Nano*, **2013**, 7, 8917-8923.
- (6) Nanoscale Assembly into Extended and Continuous Structures and Hybrid Materials. Emrick, T.; **Pentzer, E.** *NPG Asia Materials*, **2013**, 5, e43.
- (7) Organic Donor-Acceptor Shish-Kebab Crystals by Heterogeneous Nucleating Crystallization of P3HT on Perylene Diimide Crystals. Bu, L.; **Pentzer, E.**; Bokel, F.; Emrick, T.; Hayward, R. *ACS Nano*, **2012**, 6, 10924-10929.
- (8) Solution-Assembled Fibrils of End-Functionalized P3HT for Directed Attachment of CdSe Nanoparticles. **Pentzer, E.**; Bokel, F.; Hayward, R.; Emrick, T. *Advanced Materials*, **2012**, 24, 2254-2258.
- (9) Sterically-Stabilized Nanoparticles in Solutions and at Interfaces. Miesch, C.; **Pentzer, E.**; Emrick, T. In *Comprehensive Polymer Science*, **2011**.
- (10) Assembly of Poly(3-Hexylthiophene)/CdSe Hybrid Nanowires by Co-crystallization. Bokel, F.; Sudeep, P.; **Pentzer, E.**; Emrick, T.; Hayward, R. *Macromolecules*, **2011**, 44, 1768-1770.
- (11) Substrate Encapsulation: An Efficient Strategy for the RCM Synthesis of Unsaturated ϵ -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.shtm>)
- (12) Bioactive and Therapeutic ROMP Polymers. Smith, D.; **Pentzer, E. B.**; Nguyen, S. T. *Polymer Reviews*, **2007**, 47, 419-459.
- (13) 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

- 2014:** Fusion Functional Polymeric Materials Conference (Cancun, Mexico); National Meeting of the American Chemical Society (Dallas, TX); University of Florida (Gainesville, FL); CWRU (Chemical Engineering Department, Cleveland, OH), National Meeting of the American Chemical Society (San Francisco, CA)
- 2013:** CWRU (Physics Department, Cleveland, OH); University of Pittsburgh (Pittsburgh, Pennsylvania); National Meeting of the American Chemical Society (Indianapolis, Indiana); University of Zimbabwe (Harare, via Skype); Case Western Reserve University (Cleveland, Ohio); University of Georgia (Athens, Georgia); University of Maine (Orono, Maine); Washington University (St. Louis, Missouri)
- 2012:** New Mexico Institute of Mining and Technology; (Socorro, New Mexico); University of Washington (Seattle, Washington); National Meeting of the American Chemical Society (San Diego, CA)
- 2011:** Oak Ridge National Lab (Oak Ridge, Tennessee); Energy Frontiers Research Summit and Forum (Washington DC)
- 2010:** Clean Energy Connections Conference and Opportunity Fair (Springfield, MA)

2009: Gordon Research Conference on Macromolecular Materials (Ventura, CA)

2008: NATO Advanced Summer Institute on New Materials via Metal Mediated Macromolecular Engineering: From Complex to Nano Structures (Antalya, Turkey)

Relevant Affiliations

- American Chemical Society (Organic Division), 2006-2012
- American Chemical Society (Polymeric Materials: Science and Engineering Division), since 2006
- American Chemical Society (Polymer Division), since 2010
- American Association for the Advancement of Science, since 2013
- Iota Sigma Pi National Honor Society of Women in Chemistry, since 2004
- Editor for DOE Energy Frontier Research Center Newsletter, 2012-2013

Committees and Community Service

- Graduate Recruitment Committee, Chemistry Department CWRU
- ACS POLY and PMSE student chapter committee member
- ShowCASE program board member, CWRU
- Institute for Advanced Materials (IAM) internal advisory board member, CWRU
- CWRU representative to ARPA-E Energy Innovation Summit, February 2014
- Cleveland ACS Molecules in Motion Moderator and Judge, March 2014
- CWRU representative to UC Laboratory Safety Workshop, May 2014
- Panelist: AIAA Propulsion and Energy Forum on Advanced Terrestrial Energy Technologies, July 2014

Mentees

- Postdocs: Brendan McGrail (2013-present)
- PhD students: Rachael Matthews (2013-present), Bradley Rodier (2013-present)
- Masters Students: Yuanhui Xiang (2013-present), Peiran Wei (2013-present)
- Undergraduate Students: Jordan Swisher (2013-present), Eric Mosher (2013-present), Edward Peng (2013-present), Emily Young (2013-present), Spencer Burton (2013-present), Ty Densmore (2014-present), Riki Drout (2014-present), Maria Tickerhoof (2014-present)
- High school students: Kim Gliebe (2013-2014), Jillian Wilkerson (2013-present), Daphney Bonner (summer 2014)