

ELENA E. SHEINA
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EDUCATION

Carnegie Mellon University Ph.D. in Chemistry <i>Dissertation Topic: Synthesis and Characterization of Novel Regioregular Thiophene Polymers with Polyetheric Substituents</i> <i>Advisor: Professor Richard D. McCullough</i>	Pittsburgh, PA May 2004
Carnegie Mellon University Master of Science in Polymer Science	Pittsburgh, PA May 2000
Ouachita Baptist University Bachelor of Science in Chemistry	Arkadelphia, AR May 1998
Kazakh National Technical University, Specialization in Automation and Telemechanics	Kazakhstan, CIS 1991-1994

WORK EXPERIENCE

Carnegie Mellon University, Research Assistant, May 2000-present	Pittsburgh, PA
Graduate Teaching Assistant, August 1998 - 2000 Taught organic synthesis and analysis lab, molecular design and synthesis lab	

SKILLS

Experimental

Organic and polymer synthesis, ¹H and ¹³C NMR, GC-MS, MALDI-TOF MS, FT-IR, UV-Vis, SEM, DSC, electrochemistry, four point probe, thin film processing, GPC, HPLC, column chromatography, Glove box, vacuum line applications.

PUBLICATIONS

Sheina, Elena E.; Khersonsky, Sonya M.; Jones, Edward G.; McCullough, Richard D. High Conductivity and Unprecedented Stability in New Regioregular Alkoxy-Functionalized Polythiophenes. Submitted for publication.

Sheina, Elena E.; Liu, Jinsong; Iovu, Mihaela Corina; Laird, Darin W.; McCullough, Richard D. Chain Growth Mechanism for Regioregular Nickel-Initiated Cross-Coupling Polymerizations. *Macromolecules Commun.* **2004**, 37, 3526.

Sheina, Elena E.; McCullough, Richard D. Electrical properties of highly conductive EDOT based copolymers. *Polymer Preprints* **2004**, in press.

Iovu, Mihaela C.; **Sheina, Elena E.;** McCullough, Richard D. Regioregular Poly(3-alkylthiophenes) with Well-defined Molecular Weight and Narrow Molecular Weight Distribution Using Grignard Metathesis (GRIM) Method. *MACRO* **2004**, in press.

Iovu, Mihaela C.; **Sheina, Elena E.**; Jeffries-El, Malika; McCullough, Richard D. Regioregular poly(3-alkylthiophene) conducting block copolymers synthesized by atom transfer radical polymerization. *MACRO* **2004**, in press.

Iovu, Mihaela C.; **Sheina, Elena E.**; Sauve, Genevieve; Jeffries-El, Malika; Cooper, Jessica; McCullough, Richard D. Synthesis of poly(3-hexylthiophene) di-block copolymers using atom transfer radical polymerization. *Polymer Preprints* **2004**, *45*, 278.

Iovu, Mihaela; **Sheina, Elena**; Jeffries-El, Malika; Sauve, Genevieve; Cooper, Jessica; McCullough, Richard. Synthesis and characterization of poly(3-hexylthiophene) block copolymers. Abstracts, 35th Central Regional Meeting of the American Chemical Society, Pittsburgh, PA, United States, October 19-22 (**2003**), 108.

Sheina, Elena E.; McCullough, Richard D. Electrical and spectroscopic property differences of poly(3-alkoxythiophenes) synthesized by various methods. *Polymer Preprints* **2003**, *44*, 885.

Sheina, Elena E.; Khersonsky, Sonya M.; Jones, Edward G.; McCullough, Richard D. Toward poly(3- and 3,4-alkoxythiophenes). *Polymer Preprints* **2003**, *44*, 843.

Min, G.; Savin, D.; Gu, Z.; Patterson, G. D.; Kim, S. H.; Ramsay, D. J.; Fishman, D.; Ivanov, I.; **Sheina, E.**; Slaby, E.; Oliver, J. Solution Characterization of Monodisperse Atactic Polystyrenes by Static and Dynamic Light Scattering. *International Journal of Polymer Analysis and Characterization* **2003**, *8*, 187.

Sheina, Elena E.; Liu, Jinsong; McCullough, Richard D. Synthesis and properties of conducting elastomers. *Polymeric Materials Science and Engineering* **2002**, *86*, 177.

Liu, Jinsong; **Sheina, Elena**; Kowalewski, Tomasz; McCullough, Richard D. Tuning the electrical conductivity and self-assembly of regioregular polythiophene by block copolymerization: nanowire morphologies in new di- and triblock copolymers. *Angewandte Chemie, International Edition* **2002**, *41*, 329.

Liu, Jinsong; **Sheina, Elena**; Zhai, Lei; Kowalewski, Tomasz; McCullough, Richard D. Nanowires formed from block copolymers of regioregular polythiophene. *Polymeric Materials Science and Engineering* **2002**, *86*, 35.

McCullough, Richard D.; Liu, Jingsong; **Sheina, Elena**; Heuze, Karine; Stokes, Kristoffer; Jayaraman, Manikandan; Bjornholm, Thomas; McDevitt, John T. Self-assembly of amphiphilic conducting polymers into nanowires, nanocircuits, and multifunctional materials. *Polymeric Materials Science and Engineering* **2001**, *84*, 858.

PATENTS

McCullough, Richard D.; Liu, Jinsong; Ewbank, Paul C.; **Sheina, Elena E.** Polythiophenes, block copolymers made therefrom, and methods of forming the same. US Patent No. 6602974, **2003**, 25 pp.

PRESENTATIONS

Sheina, Elena E.; McCullough, Richard D. Spectroscopic and Electronic Properties of Highly Conductive Regioregular Poly(3-Alkoxythiophenes). Sixth International Symposium on Functional π -Electron Systems, Ithaca, NY, June 14-18, **2004**, poster.

Sheina, Elena E.; McCullough, Richard D. Electrical and spectroscopic property differences of poly(3-alkoxythiophenes) synthesized by various methods. 226th ACS National Meeting, New York, NY, September 7-11, **2003**, poster POLY-136.

Sheina, Elena E.; Khersonsky, Sonya M.; Jones, Edward G.; McCullough, Richard D. Toward poly(3- and 3,4-alkoxythiophenes), 225th ACS National Meeting, New Orleans, LA, March 23-27, **2003**, poster POLY-209.

Sheina, Elena E.; Liu, Jinsong; McCullough, Richard D. *Synthesis and properties of conducting elastomers*, 223rd ACS National Meeting, Orlando, FL, April 7-11, **2002**, poster.

AWARDS, GRANTS AND FELLOWSHIPS

- **Lubrizol Graduate Fellowship – January 2003 – present**
Awarded for excellence in materials research
- **Lassettre Travel Award - January 2003**
Awarded to chemistry graduate students who are presenting at a national conference
- **McPherson Ach-Award/Scholarship - August 1997 - May 1998**
Awarded to graduating senior with the highest academic record in the Department of Chemistry Bachelor of Science degree program
- **Sidney Rowland Memorial Award - August 1996 - May 1998**
Awarded to undergraduate students mathematics majors for outstanding academic achievement and to promote the development of mathematics at Ouachita Baptist University
- **Mondy-Provine Scholarship - August 1995 - May 1998**
Awarded to students to help supplement the expense for books
- **International Scholarship - August 1994 - May 1998**
Awarded to international undergraduate students entering Ouachita Baptist University to promote diversity at Ouachita Baptist University

LEADERSHIP EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA

- Women in Science Seminar Committee Member, September 1999 - May 2002

PROFESSIONAL MEMBERSHIPS

- American Chemical Society, 2002-present
- Mathematics and Logic Society, 1996-1998

REFERENCES

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Dr. Berry is the chairman of my graduate advisory committee and I have taken several classes with this professor.

Dr. Gary D. Patterson
Professor
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Dr. Patterson is a member of my graduate advisory committee and I worked in his research group for one year.

Dr. Susan T. Graul
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Department of Chemistry
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I taught the organic synthesis and analysis lab for Dr. Graul.

Dr. Richard D. McCullough
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Dr. McCullough is my graduate advisor.