

Professor Derek L. Patton

Assistant Professor, School of Polymers and High Performance Materials

University of Southern Mississippi

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a. PROFESSIONAL PREPARATION

B.S. 2000, Chemistry, Jacksonville State University, Magna cum laude and Honors in Chemistry

M.S. 2002, Chemistry, University of Alabama at Birmingham, Birmingham, AL; Advisor: Prof. Rigoberto Advincula

Ph.D. 2006, Chemistry, University of Houston, Houston, TX; Advisor: Prof. Rigoberto Advincula

Postdoctoral 2006-2008, NIST Polymers Division, Gaithersburg, MD; Advisor: Dr. Kathryn Beers

b. APPOINTMENTS

2008 – Present **Assistant Professor**, University of Southern Mississippi, School of Polymers and High Performance Materials, Hattiesburg, MS

2006 – 2008 **National Research Council Postdoctoral Associate**, National Institute of Standards and Technology, Polymers Division, Gaithersburg, MD, Advisor: Kathryn Beers

2004 – 2006 **Welch Foundation Graduate Research Fellow**, University of Houston, Department of Chemistry, Birmingham, AL, Advisor: Rigoberto Advincula

Summer 2005 **Visiting Scientist**, Max Planck Institute for Polymer Research, Mainz, Germany, Advisor: Wolfgang Knoll

Summer 2003 **Visiting Scientist**, Tokyo Institute for Agriculture and Technology, Tokyo, Japan, Advisor: Hiroaki Usui

2000 – 2002 **NSF GK-12 Graduate Teaching Fellow**, University of Alabama at Birmingham, Department of Chemistry, Birmingham, AL, Advisor: Rigoberto Advincula

c. AWARDS AND HONORS

- PMSE Young Investigator Symposium Invitation, 2010
- QEP Faculty Development Fellowship: Finding a Voice Improving Oral and Writing Competencies in the Classroom, 2009
- National Research Council (NRC) Postdoctoral Research Associateship, 2006 – 2008
- Postdoctoral Outstanding Poster Presentation, Gordon Research Conference, Polymers, 2007
- UH Graduate Student Research Achievement Award, Sigma Xi Scientific Research Society, 2006
- Pennzoil Fellowship for Outstanding 5th Year Graduate Student, University of Houston, 2005
- Graduate Physical Sciences Poster Award, Sigma Xi Research Day, University of Houston, 2005
- Poster Award, ACS 2005, San Diego, Colloid and Surface Science Division, 2004
- Welch Foundation Research Fellowship, University of Houston, 2004 – 2006
- NSF GK-12 Graduate Teaching Fellow, University of Alabama at Birmingham, 2000 – 2002

d. TEACHING EXPERIENCE

- PSC 341L: Polymer Techniques, undergraduate-level course (Fall 2008, Fall 2009, Fall 2010)
- PSC 740: Polymer Kinetics, graduate-level course (Spring 2009, Spring 2010, Spring 2011)
- PSC 475: Biomaterials, undergraduate-level course (Spring 2011)

- Teaching Assistant at University of Houston, Department of Chemistry: Chemistry Lab for Engineers (1 semester, 01/2003)
- Teaching Assistant at University of Alabama-Birmingham, Department of Chemistry: General Chemistry Lab (1 semester, 08/2002)

e. PUBLICATIONS

Publication Statistics

H-Index: 12

Citations: 312

Peer-Reviewed

University of Southern Mississippi Publications

1. Hensarling, R.; Rahane, S.; LeBlanc, A.; Sparks, B.; White, E.; Locklin, J.; **Patton, D.** "Thiol-Isocyanate "Click" Reactions: Rapid Development of Functional Polymeric Surfaces" *Polym. Chem.* **2011**, *2*, 88-90. DOI:10.1039/C0PY00292E.
2. Hensarling, R.; Doughty, V.; Chan, J.; **Patton, D.** "Clicking" Polymer Brushes with Thiol-yne Chemistry: Indoors and Out" *J. Am. Chem. Soc.* **2009**, *131*, 14673-14675.

Postdoctoral Publications

3. Chan, E.; Page, K.; Im, S.; **Patton, D.**; Huang, R.; Stafford, C. "Viscoelastic Properties of Confined Polymer Films Measured via Thermal Wrinkling" *Soft Matter* **2009**, DOI: 10.1039/b916207k.
4. Yager, K.G.; Berry, B.C.; Page, K.; **Patton, D.**; Karim, A.; Amis, E.J. "Disordered Nanoparticle Interfaces for Directed Self-assembly" *Soft Matter* **2009**, *5*, 622-628.
5. **Patton, D.**; Taranekar, P.; Fulghum, T.; Advincula, R. "Electrochemically Active Dendritic Linear Block Copolymers via RAFT Polymerization: Synthesis, Characterization, and Electrodeposition Properties" *Macromolecules* **2008**, *41*, 6703-6713.
6. **Patton, D.**; Page, K.; Xu, C.; Genson, K.; Fasolka, M.; Beers, K. "Measurement of Reactivity Ratios in Surface-Initiated Radical Copolymerization" *Macromolecules* **2007**, *40*, 6017.

Graduate Publications

7. Taranekar, P.; Fulghum, T.; **Patton, D.**; Ponnepoti, R.; Clyde, G.; Advincula, R. "Investigating Carbazole Jacketed Precursor Dendrimers: Sonochemical Synthesis, Characterization, and Electrochemical Crosslinking Properties" *J. Am. Chem. Soc.* **2007**, *129*, 12537.
8. Taranekar, P.; Fulghum, T.; Baba, A.; **Patton, D.**; Advincula, R. "Quantitative electrochemical and electrochromic behavior of terthiophene and carbazole containing conjugated polymer network film precursors: EC-QCM and EC-SPR" *Langmuir* **2007**, *23*, 908-917.
9. **Patton, D.**; Advincula, R. "A Versatile Synthetic Route to Macromonomers via RAFT Polymerization" *Macromolecules* **2006**, *39*, 8674.
10. Taranekar, P.; Park, J.; **Patton, D.**; Fulghum, T.; Ramon, J.; Advincula, R. "Conjugated Polymer Nanoparticles via Intramolecular Crosslinking of Dendrimeric Precursors" *Adv. Mat.* **2006**, *18*, 2461.
11. Fulghum, T.; **Patton, D.**; Advincula, R. "Fuzzy Ternary Particle Systems by Surface-initiated Atom Transfer Radical Polymerization from Layer-by-Layer Colloidal Core-Shell Macroinitiator Particles" *Langmuir* **2006**, *22*, 8397.
12. Taranekar, P.; Abdulbaki, M.; Waenkaew, P.; **Patton, D.**; Fulghum, T.; Advincula, R. "Synthesis and Properties of Poly(cyanofluorene-alt-o/m/p-phenylenevinylene)-based Alternating Copolymers for Light-Emitting Diode" *Chem. Mater.* **2006**, *39*, 3848.
13. **Patton, D.**; Mullings, M.; Advincula, R. "A Facile Synthesis Route to α,ω -Functionalized Thiol Telechelics via Reversible Addition Fragmentation Chain Transfer (RAFT) Polymerization" *Macromolecules* **2005**, *38*, 8597.

14. Deng, S.; Locklin, J.; **Patton, D.**; Baba, A.; Advincula, R. C.; "Thiophene Dendron Jacketed Poly(amidoamine) Dendrimers: Nanoparticle Synthesis and Adsorption on Graphite" *J. Am. Chem. Soc.* **2005**, *127*, 1744.
15. Katsuki, K.; Bekku, H.; Kawakami, A.; Locklin, J.; **Patton, D.**; Tanaka, K.; Advincula, R.; Usui, H. "Preparation of carbazole polymer thin films chemically bound to substrate surface by physical vapor deposition combined with self-assembled monolayer" *Japanese Journal of Applied Physics Part 1*: **2005**, *44*(1B), 504.
16. **Patton, D.**; Locklin, J.; Meredith, M.; Xin, Y.; Advincula, R.; "Nanocomposite Hydrogen-Bonded Multilayer Ultrathin Films by Simultaneous Sexithiophene and Au Nanoparticle Formation" *Chem. Mater.* **2004**, *16*(24), 5063.
17. Locklin, J.; **Patton, D.**; Deng, S.; Baba, A.; Millan, M.; Advincula, R. C.; "Conjugated Oligothiophene-Dendron-Capped CdSe Nanoparticles: Synthesis and Energy Transfer" *Chem. Mater.* **2004**, *16*(24), 5187.
18. **Patton, D.**; Park, M.-K.; Wang, S.; Advincula, R. C.; "Evanescent Waveguide and Photochemical Characterization of Azobenzene-Functionalized Dendrimer Ultrathin Films" *Langmuir* **2002**, *18*(5), 1688.

Undergraduate Publications

19. Gryko, J.; McMillan, P.; Marzke, R.; Ramachandran, G.; **Patton, D.**; Deb, S.; Sankey, O. "Low-density framework form of crystalline silicon with a wide optical band gap" *Physical Review B: Condensed Matter and Materials Physics* **2000**, *62*(12), 7707.

Book Chapters

1. Locklin, J.; **Patton, D.**; Advincula, R.C. "Nanoscale Manipulation of Bolaform Amphiphiles." *Encyclopedia of Nanoscience and Nanotechnology*, **2003**, Marcel Dekker Publishers, invited chapter.

Proceedings and Preprints

University of Southern Mississippi Proceedings

1. Rahane, S.; Hensarling, R.; **Patton, D.** "Synthesis and modification of multicomponent and multiclickable polymer brushes" *Polymer Preprints* **2010**, *51*(2), 740-741.
2. **Patton, D.**; Hensarling, R.; Sparks, B.; Rahane, S.; LeBlanc, A. "Surface engineering with thiol-click reactions" *Polymer Preprints* **2010**, *51*(2), 693-694.
3. Arges, C.; Kulkarni, S.; Baranek, A.; Pan, K.; Jung, M.; **Patton, D.**; Mauritz, K.; Ramani, M. "Quarternary Ammonium and Phosphonium Based Anion Exchange Membranes for Alkaline Fuel Cells" *ECS Transactions* **2010**, *33*, 1903.
4. Li, J.; **Patton, D.** "Preparation and properties of POSS-grafted polyphosphazenes" *Polymer Preprints* **2010**, *51*(1), 532.
5. Baranek, A.; Suggs, S.; **Patton, D.** "Synthesis of tethered triazole poly(aryl ether sulfones) toward high temperature, low humidity proton exchange membranes" *Polymer Preprints* **2010**, *51*(1), 638.
6. Sparks, B.; **Patton, D.** "Synthesis of polypeptide brushes via nickel-mediated surface-initiated polymerization of σ -amino acid-N-carboxyanhydrides (NCAs)" *PMSE Preprints* **2010**.
7. **Patton, D.**; Hensarling, R.; Rahane, S.; Sparks, B.; Le Blanc, A.; Doughty, V. "Thiol "click" reactions: versatile synthetic routes to functional polymer surfaces" *PMSE Preprints* **2010**.
8. Li, J.; LeBlanc, A.; Huber, J.; **Patton, D.** "Surface-Initiated Polymerization of Phosphoranimes: A Route to Hybrid Inorganic-Organic Poly(Phosphazene) Brushes" *Polymer Preprints* **2009**.

Postdoctoral/Graduate Proceedings

9. **Patton, D.**; Berry, B.; Stafford, C.; Beers, K.; Fasolka, M.; "Statistical copolymer brush gradients as a platform for screening block copolymer self-assembly" *PMSE Preprints* **2008**, *98*, 31.
10. Karim, A.; Yager, K.; Berry, B.; Page, K.; **Patton, D.**; Amis, E. "Defects tolerant self-assembly with tunable polymer nanoparticles" *PMSE Preprints* **2008**, *98*, 233.

11. **Patton, D.**; Xu, C.; Beers, K. "Statistical copolymer brush composition gradients via microchannel confined surface-initiated photopolymerization" *Polymer Preprints* **2007**, 48(1), 174.
12. Page, K.; **Patton, D.**; Huang, R.; Stafford, C. "Dynamics of confined polymer films measured via thermal wrinkling" *PMSE Preprints* **2007**, 97, 784-785.
13. **Patton, D.**; Taranekar, P.; Clyde, G.; Advincula, R. "Functional dendritic chain transfer agents (CTAs): A facile approach to dendritic-linear macromolecules via RAFT polymerization." *PMSE Preprints* **2006**, 94, 337.
14. **Patton, D.**; Advincula, R. "Direct synthesis of norbornenyl-, vinyl-, and cinnamyl-functionalized telechelics by reversible addition fragmentation chain transfer (raft) polymerization." *Polymer Preprints* **2006**, 47, 110.
15. Taranekar, P.; **Patton, D.**; Fulghum, T.; Advincula, R. "Carbazole terminated poly (aryl ether) dendrimers: a dendrimeric conjugated precursor polymer approach." *PMSE Preprints* **2006**, 94, 341.
16. Park, J.; **Patton, D.**; Liu, M.; Taranekar, P.; Mays, J.; Dadmun, M.; Advincula, R. "Adsorption of bifunctionalized poly(2-vinylpyridine)-polystyrene- poly(2-vinylpyridine); characterization by AFM." *Polymer Preprints* **2006**, 47, 57.
17. Park, M.; **Patton, D.**; Advincula, R.; Knoll, W. "Label-free biosensor based on ultrathin film of biotin-functionalized poly(3-aminobenzoic acid)." ACS National Meeting, Atlanta, GA, March 26-30, **2006**.
18. Baba, A.; Taranekar, P.; Pannapati, R.; **Patton, D.**; Knoll, W.; Advincula, R. "Conducting polymer/glucose oxidase multilayer-based electrochemical surface plasmon resonance glucose biosensor." *PMSE Preprints* **2006**, 94, 586
19. Fulghum, T.; Marruffo, A.; Taranekar, P.; Abdulbaki, M.; Patton, D.; Advincula, R. "Surface initiated polymerization of precursor polymers for application in optoelectronic devices." *Polymer Preprints* **2006**, 47, 288.
20. Taranekar, P.; Abdulbaki, M.; Waenkaew, P.; **Patton, D.**; Fulghum, T.; Advincula, R. "Polymer light-emitting diodes based on poly(cyanofluorene-alt-O/M/P-phenylenevinylene)- altering copolymers." *Polymer Preprints* **2006**, 47, 37.
21. Huang, C.; Taranekar, P.; Jiang, G.; **Patton, D.**; Advincula, R. "Molecular imprinting and sensing using LBL complexes of europium (III) and an electrochemically crosslinkable polyelectrolyte." *PMSE Preprints* **2006**, 94, 528.
22. Park, Y.; Deng, S.; Sriwichal, S.; Onishi, K.; Locklin, J.; Fulghum, T.; **Patton, D.**; Advincula, R. "Synthesis and fabrication of ultrathin hybrid semiconductor films by alternate layer-by-layer deposition of dithiol-terminated oligothiophenes and CdS nanoclusters." *PMSE Preprints* **2006**, 94, 434.
23. Waenkaew, P.; Taranekar, P.; Huang, C.; **Patton, D.**; Phahichphant, S.; Advincula, R. "Layer-by-layer self-assembly and deposition of precursor poly(thiophene) and poly(ionene) derivatives." *PMSE Preprints* **2006**, 94, 511.
24. **Patton, D.**; Park, J.; Liu, M.; Mays, J.; Dadmun, M.; Kilbey, M.; Smith, G.; Advincula, R. "Telechelic polymer velcros or brushes: Synthesis, characterization, and adsorption, studies" *Polymer Preprints* **2005**, 46(2), 122-123.
25. **Patton, D.**; Mullings, M.; Advincula, R. "A facile synthesis route to thiol functionalized α,ω -telechelic polymers via reversible addition chain transfer (RAFT) polymerization" *Polymer Preprints* **2005**, 46(1), 581-582.
26. **Patton, D.**; Mullings, Matthew; Rogers, A.; Baba, A.; Advincula, R. "Multiply-bound polymer chains of α,ω -thiol telechelics: surface adsorption properties." *Polymer Preprints* **2005**, 46(1), 435-436.
27. Park, J.; **Patton, D.**; Liu, M.; Mays, J.; Dadmun, M.; Advincula, R. "Adsorption of P2VP-dPS-P2VP triblock copolymers onto reactive monolayers: towards multiply bound polymer chains" *Polymer Preprints* **2005**, 46(1), 501-502.

28. Ikarashi, A.; **Patton, D.**; Locklin, J.; Baba, A.; Shinbo, K.; Kato, K.; Kaneko, F.; Advincula, R. "Electrochemical crosslinking of oligofluorene-capped CdSe nanoparticles via electrochemical cross-linking" *Polymer Preprints* **2005**, 46(1), 389-390.
29. Rogers, A.; **Patton, D.**; Fulghum, T.; Advincula, R. "Synthesis of thiol end-capped polymer brushes via surface-initiated reversible addition fragmentation chain transfer polymerization" 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005).
30. Fulghum, T.; **Patton, D.**; Advincula, R. "Grafting of polymer brushes from layer-by-layer colloidal core-shell particles" *PMSE Preprints* **2005**, 92, 378-379.
31. Park, Y.; Locklin, J.; **Patton, D.**; Advincula, R. "Investigating the direct grafting of organic functionality from nanoparticle surfaces: aromatic coupling reactions" *Polymer Preprints* **2005**, 46(1), 422-423.
32. **Patton, D.**; Liu, Y.; Meredith, M.; Locklin, J.; Park, M.; Advincula, R. "Synthesis of Au nanoparticles within hydrogen-bonded multilayer ultrathin films of polymer pendant oligothiophenes" *PMSE Preprints* **2004**, 90, 333-334.
33. Locklin, J.; **Patton, D.**; Hoacuja, R.; Corona, A.; Advincula, R. "Effects of temperature on the adsorption processes of bolaform amphiphiles and polyelectrolytes in layer by layer deposition" *Polymer Preprints* **2004**, 45(1), 839-840.
34. Locklin, J.; Deng, S.; **Patton, D.**; Onishi, K.; Baba, A.; Advincula, R. "Linear and branched oligothiophene electroactive surfactants with various headgroups and their interaction with different colloidal semiconductor nanocrystals" *PMSE Preprints* **2004**, 90, 712-713.
35. Onishi, K.; Locklin, J.; Fulghum, T.; **Patton, D.**; Advincula, R. "Conjugated polymer networks of CdS nanoparticles and oligothiophenes: photoluminescence and device behavior" *PMSE Preprints* **2004**, 90, 591-592.
36. Onishi, K.; Locklin, J.; **Patton, D.**; Advincula, R. "Ultrathin hybrid semiconductor films by alternate layer-by-layer deposition of oligothiophene and CdS nanoclusters" *Polymer Preprints* **2004**, 45(1), 287-288.
37. Millan, M.; Park, M.; Deng, S.; **Patton, D.**; Locklin, J.; Advincula, R. "Observing the crosslinking of a benzophenone-modified poly(acrylic acid) film by UV-Vis spectroscopy and FT-IR imaging" *Polymer Preprints* **2004**, 45(1), 937-938.
38. Bekku, H.; Katsuki, K.; Usui, H.; **Patton, D.**; Locklin, J.; Advincula, R. "Surface initiated polymerization of carbazole containing methacrylates by physical vapor deposition for improved hole injection layers" *Polymer Preprints* **2004**, 45(1), 812-813.
39. **Patton, D.**; Park, M.; Wang, S.; Advincula, R. "Evanescent waveguide characterization and photoisomerization of ALL - azobenzene functionalized dendrimers on ultrathin films: aggregation behavior and matrix effects" *PMSE Preprints* **2001**, 85, 28-29.

f. PRESENTATIONS

Invited Presentations

University of Southern Mississippi

- American Chemical Society National Meeting, Boston, MA 2010. "Surface Engineering with Thiol-Click Reactions" Thiol-X Symposium
- American Chemical Society National Meeting, San Francisco, CA 2010. "Thiol-Click Reactions: Versatile Synthetic Routes to Functional Polymer Surfaces". PMSE Young Investigators Symposium.
- International Symposium on Stimuli Responsive Materials, Hattiesburg, MS 2009. "Thiol-Click Reactions: Versatile Synthetic Routes to Functional Polymer Surfaces".

Contributed Presentations

University of Southern Mississippi

- American Chemical Society National Meeting, Salt Lake City, 2009. (Poster) "Surface-Initiated Polymerization of Phosphoranimines: A Route to Hybrid Inorganic-Organic Poly(Phosphazene) Brushes"

Postdoctoral/Graduate Presentations

- American Chemical Society National Meeting, Chicago, 2007. (Oral) "Statistical Copolymer Brush Gradients via Surface-Initiated Photopolymerization."
- Gordon Research Conference-Polymers West, Ventura, 2007. (Poster) "Statistical Copolymer Brush Gradients via Surface-Initiated Photopolymerization."
- American Chemical Society National Meeting, San Diego, 2005. (Oral) "Multiply-bound polymer chains of α,ω -thiol telechelics: surface adsorption properties."
- American Chemical Society National Meeting, San Diego, 2005. (Poster) "A facile synthesis route to thiol functionalized α,ω -telechelic polymers via reversible addition chain transfer (RAFT) polymerization."
- American Chemical Society National Meeting, Anaheim, 2004. (Oral) "Synthesis of Au nanoparticles within hydrogen-bonded multilayer ultrathin films of polymer pendant oligothiophenes."
- American Chemical Society National Meeting, Anaheim, 2004. (Poster) "Oligofluorenes as electroactive ligands for CdX (X = Se, S) nanocrystals."
- American Chemical Society National Meeting, Chicago, 2002. (Oral) "Evanescent waveguide characterization and photoisomerization of ALL - azobenzene functionalized dendrimers on ultrathin films: aggregation behavior and matrix effects."

Patton Research Group Presentations (Students and Postdoctoral Researchers)

- American Chemical Society National Meeting, Boston, MA 2010. Dr. Santosh Rahane (Oral); Synthesis and modification of multicomponent and multclickable polymer brushes
- 2010 National Graduate Research Polymer Conference; Ryan Hensarling
- 2010 National Graduate Research Polymer Conference; Bradley Sparks
- American Chemical Society National Meeting, San Francisco, CA 2010. Ryan Hensarling (Oral); "Clicking" Polymer Brushes using Thiol-yne Chemistry: Indoors and Out
- American Chemical Society National Meeting, San Francisco, CA 2010. Austin Baranek (Poster); "Synthesis of tethered triazole poly(aryl ether sulfones) toward high temperature, low humidity proton exchange membranes.
- American Chemical Society National Meeting, San Francisco, CA 2010. Bradley Sparks (Poster); Synthesis of Polypeptide Brushes via Nickel-Mediated Surface-Initiated Polymerization of α -Amino Acid-N-Carboxyanhydrides (NCAs)
- American Chemical Society National Meeting, San Francisco, CA 2010. Dr. Jun Li (Poster); Preparation and properties of POSS-grafted polyphosphazenes
- Waterborne Symposium, New Orleans, LA 2010. Ryan Hensarling (Poster); "Clicking" Polymer Brushes using Thiol-yne Chemistry: Indoors and Out. **1st Place Graduate Poster Presentation**
- Waterborne Symposium, New Orleans, LA 2010. Bradley Sparks (Poster); Synthesis of Polypeptide Brushes via Nickel-Mediated Surface-Initiated Polymerization of α -Amino Acid-N-Carboxyanhydrides (NCAs). **2nd Place Graduate Poster Presentation**
- Waterborne Symposium, New Orleans, LA 2010. Austin Baranek (Poster); "Synthesis of tethered triazole poly(aryl ether sulfones) toward high temperature, low humidity proton exchange membranes.
- Waterborne Symposium, New Orleans, LA 2010. Dr. Santosh Rahane (Poster); Synthesis of multicomponent clickable polymer brushes
- Polymer Composite Matrix Science Workshop, New Orleans, LA. Dr. Jun Li (Poster); Preparation and properties of POSS-grafted polyphosphazenes

g. STUDENT AND POSTDOCTORAL MENTORSHIP

Graduate Students

- Austin Baranek (2009 – current)
- Ryan Hensarling (2009 – current)
- Bradley Sparks (2009 – current)
- Matthew Jungman (2010 – current)
- Jananee Narayanan Sivakami (2010 – current)

Postdoctoral Researchers

- Dr. Santosh Rahane (2009 – current),
- Dr. Jun Li (2008 – 2010)

Undergraduate Students

- Jared Cobb (2010-current)
- Arthur LeBlanc (2008-Current)
- Steven Suggs (2008-Current)
- Joel Huber (2008-2009)
- Vanessa Doughty (Summer 2009, REU from St. Norbert College)
- Wendy Marth (Summer 2010, REU from Valparaiso College)
- Jake Reid (Summer 2010, REU from Copiah-Lincoln Community College)

High School Students

- Ellis Crawford (Summer 2010, Oak Grove High School)

h. SERVICE and SYNERGISTIC ACTIVITIES

USM Committee Service

- School of Polymers Graduate Student Recruiting Committee (08/2008 – Present)
- School of Polymers Organic Polymer Chemistry Curriculum Committee (08/2008 – Present)
- School of Polymers Physical Polymer Chemistry Curriculum Committee (08/2008 – Present)

Symposium Organizer

- Functional Polymer Surfaces and Interfaces, Joint Southwest/Southeast Regional American Chemical Society Meeting (SW/SERMACS) New Orleans, December 2-3, 2010.
- 13th Semiannual NIST Combinatorial Methods Industry Workshop – Advances in Library Fabrication; April 28-29, 2008.

Journal Referee

- Serve as reviewer for *Journal of the American Chemical Society*, *Polymer Chemistry*, *Chemical Communications*, *Journal of Materials Chemistry*, *Macromolecules*, *Langmuir*, *Soft Matter*, *Journal of Organic Chemistry*, *ACS Applied Materials and Interfaces*, *European Polymer Journal*, *Reactive and Functional Polymers*, *Journal of Polymer Science A: Polymer Chemistry*

NSF Panel Review Member

- Division of Chemistry, 2009
- Division of Graduate Education, 2010

Proposal Referee (ad hoc)

- Army Research Office (ARO)

Derek L. Patton, Ph.D.

- National Science Foundation (NSF)
 - Division of Material Research

Professional Membership

- American Chemical Society
 - Division of Polymer Chemistry
 - Division of Polymeric Materials: Science and Engineering
- Materials Research Society
- Southern Society for Coatings Technology
- Active recruitment of underrepresented groups for graduate education in polymer science via the GAANN program
- K-12 education outreach via the “What is a Polymer” field trip program
- Active participant in the 2010 Mississippi High School Polymer Science Student Competition
- Faculty advisor for the USM ACS POLY Student Chapter

i. Collaborators & Other Affiliations

(i) Collaborators (past 4 years)

Prof. Ken Mauritz (USM); Prof. Brian Berry (U. of Arkansas-Little Rock); Dr. Michael Fasolka (NIST); Prof. Wolfgang Knoll (Austrian Institute of Technology); Prof. Jimmy Mays (Univ. of Tennessee); Prof. Sarah Morgan (USM); Dr. Kirt Page (NIST); Prof. James Rawlins (USM); Prof. Daniel Savin (USM); Prof. Robson Storey (USM); Dr. Christopher Stafford (NIST); Prof. Jeffery Wiggins (USM); Dr. Kevin Yager (NIST); Dr. Patrick Theato (Univ. of Mainz); Prof. Jason Locklin (Univ. of Georgia)

j. Funding

Current Contracts

- \$360,000; National Science Foundation (SCIART: Modified POSS Polymers for Stone Conservation, 10/2010 – 9/2013, PI)
- \$599,715; National Science Foundation (Partnership for Innovation: A Multinational Partnership to Incite Innovation via New Generation Tailored Polymers for Interfaces, 09/2009 – 08/2012, co-PI with R. Lochhead and S. Morgan)
- \$653,280; U.S. Department of Education (Graduate Assistance in Areas of National Need (GAANN) Fellowship Program in Polymer Science 2009 – 2012, co-PI with R. Lochhead and S. Morgan)
- \$64,848; Department of Energy (Alternate Fuel Cell Membranes for Energy Independence, 2009-2010, co-PI with K. Mauritz, R. Storey, D. Savin)
- \$162,000; Office of Naval Research (Molecular and Macromolecular Design of Polybenoxazine Networks: Candidates for High Temperature Matrices, 2010-2011, sub-award PI)
- \$2,400,000; Mississippi Development Authority (Optimize Alternate Fan Abradable Project, 2009-2011, co-PI with S. Thames, J. Rawlins, J. Wiggins, S. Morgan, S. Nazarenko)

Expired Contracts

- \$70,000; Office of Naval Research (Polyphosphazenes as Flame Retardant Nanocomposite Coatings and Additives for Flame Retardant Polyurea Technology, 2008 – 2009, sub-award PI)
- \$72,000; Polyphosphazenes as Flame Retardant Nanocomposite Additives and Coatings, 2009 – 2010, sub-award PI)

Total Funding: \$4.38 million (PI + co-PI as of 12/2010)