Bradley S. Lokitz

R&D Staff
Macromolecular Nanosciences Group
Center For Nanophase Materials Sciences Division
Oak Ridge National Laboratory
(865) 574-9573
lokitzbs@ornl.gov

Education

Millsaps College, Jackson, MS	Chemistry	B.S.	2002
Univ. of Southern MS, Hattiesburg, MS	Polym. Sci. & Engineering	Ph.D.	2007

Professional Experience

2010-present	Research Staff , Center for Nanophase Materials Sciences, Macromolecular Nanomaterials Group, Oak Ridge National Laboratory, Oak Ridge, TN
2009-2010	Postdoctoral Research Associate, Center for Nanophase Materials Sciences, Macromolecular Nanomaterials Group, Oak Ridge National Laboratory, Oak Ridge, TN, Mentor: S. Michael Kilbey, II *Research Emphasis:* Synthesize and characterize well-defined polymers, including deuterated and partially deuterated materials for neutron scattering studies.
2007-2009	Postdoctoral Research Associate Neutron Scattering Science Division, Oak Ridge National Laboratory, Oak Ridge, TN, Mentor: John F. Ankner, *Research Emphasis:* Evaluate the role of polymer architecture on adsorption and surface structure using neutron reflectometry.
2002-2007	McCormick Research ,The University of Southern Mississippi, Hattiesburg, MS, Group, *Research Emphasis:* Synthesis and characterization of stimuli-responsive block copolymers via controlled radical polymerization techniques. Utilized scattering and spectroscopy techniques to evaluate self-assembly in aqueous solutions. *Dissertation title:* Aqueous RAFT Polymerization of Stimuli-Responsive Block Copolymers*Research Advisor:* Charles L. McCormick
2000-2002	Research Assistant to Professor Tim Ward, Millsaps College, Jackson, MS *Research Emphasis:* Separation of Chiral Molecules by Capillary Electrophoresis.

Professional and Synergistic Activities

2007–present Reviewer: *Langmuir, Macromolecules, and Australian Journal of Chemistry*
2002-present Member, American Chemical Society (ACS)
2007-present Member, Materials Research Society (MRS)

Honors and Awards

2003-2007 Robert M. Hearin Fellow, University of Southern Mississippi

Publications Full list follows CV

Research Synopsis
My principal research activities focus on understanding the assembly-structure-property relationships of well-defined polymers and ultrathin polymer films that can assemble into to new and useful structures. I am interested in studying polymeric materials and analyzing their nanoscale structure and responsiveness using a combination of characterization techniques including neutron scattering.

Graduate and Postdoctoral Advisors
Graduate Advisor: Charles L. McCormick (University of Southern Mississippi)

Post-doctoral Advisors: John F. Ankner (SNS-ORNL) and S. Michael Kilbey II (CNMS-ORNL)

Publications in refereed journals:

1. "Manipulating Interfaces through Surface Confinement of Poly(glycidyl methacrylate)-block-poly(vinyldimethylazlactone), a Dually Reactive Block Copolymer," **Lokitz, B.S**.; Wei, J.; Hinestrosa, J.P.; Ankner, J.F.; Kilbey II, S.M.; Messman, J.M., *Macromolecules* **2012,** *45,* 6438-6449.

2. "Versatility of Alkyne-Modified Poly(Glycidyl Methacrylate) Layers for Click Reactions," Soto-Cantu, E.; **Loktiz, B.S**.; Hinestrosa, J.P.; Deodhar, C.; Messman, J.M.; Ankner, J.F.; Kilbey II, S.M., *Langmuir* **2011,** *27,* 5986–5996.

3. "Dilute Solution Properties and Surface Attachment of RAFT Polymerized 2-Vinyl-4,4-Dimethylazlactone (VDMA)," **Lokitz, B.S**.; Messman, J.M.; Hinestrosa, J.P.; Alonzo, J.; Verduzco, R. Brown, R.; Osa, M.; Ankner, J.; Kilbey II, S.M., *Macromolecules* **2009,** *42,* 9018-9026.

4. "Highly Tailorable Materials based on 2-Vinyl-4,4-dimethyl azlactone: (Co)Polymerization, Synthetic Manipulation and Characterization," Messman, J.M.; **Lokitz, B.S**.; Pickel, J.M.; Kilbey II, S.M., *Macromolecules* **2009,** *42,* 3933-3941.

5. "RAFT-Synthesized Diblock and Triblock Copolymers: Thermally-Induced Supramolecular Assembly in Aqueous Media," McCormick, C. L.; Sumerlin, B. S.; **Lokitz, B. S**.; Stempka, J. E. *Soft Matter,* 4, 1760-1773, 2008.

6. "Gold Nanoparticle-Containing Vesicles from a RAFT-Generated, Thermally Responsive Block Copolymer," Li, Y; Smith, A. E.; **Lokitz, B. S.**; McCormick, C. L. *Macromolecules,* 40, 8524-8526, 2007.

7. "Aqueous RAFT Synthesis of Micelle Forming Amphiphilic Block Copolymers Containing *N*-Acryloyl Valine. Dual Mode, Temperature/pH Responsiveness and 'Locking' of Micelle Structure Through Interpolyelectrolyte Complexation," **Lokitz, B. S**.; York, A.W.; Stempka, J. E.; Li, Y.; Jarrett, W. L.; McCormick, C. L. *Macromolecues*, 40, 6473-6480, 2007.

8. "Stimuli-Responsive Block Copolymers by RAFT and Their Micellization Behavior," Li, Y.; **Lokitz, B. S.**; McCormick, C. L. Chapter 3 In Symposium Series No. 961 Cosmetic Nanotechnology: Polymers and Colloids in Cosmetics; Morgan, S. E., Havelka, K. O.m and Lochhead, R. Y. Eds.; ACS: Washington, DC, 2007.

9. "Responsive Nano-Assemblies via Interpolyelectrolyte Complexation of Amphiphilic Block Copolymer Micelles," **Lokitz, B. S**; Convertine, A. J; Ezell, R. G; Heidenreich, A; Li, Y; and McCormick, C. L. *Macromolecules,* 39, 8594-8602, 2006.

10. "Chiroptical Properties of Homopolymers and Block Copolymers Synthesized from the Enantiomeric Monomers *N*-Acryloyl L-Alanine and *N*-Acryloyl D-Alanine via Aqueous RAFT Polymerization," **Lokitz, B. S.**; Stempka, J. E.; York, A.W.; Li, Y.; Goel, H. K.; Bishop, R. G.; McCormick, C. L. *Australian Journal of Chemistry*, 59, 749-754, 2006.

11. "Reversible Addition Chain Fragmentation Chain Transfer Polymerization of Water-Soluble, Ion-Containing Monomers," **Lokitz, B. S**; Lowe, A. B; McCormick, C. L. Chapter

6 In Symposium Series No. 937 Polyelectrolytes and Polyzwitterions: Synthesis, Properties, and Applications; Lowe, A. B., and McCormick, C. L., Eds.; ACS: Washington, DC, 2006.

12. "Thermally Responsive Vesicles and their Structural 'Locking' via Polyelectrolyte Complex Formation," Li, Y; **Lokitz, B. S**; McCormick, C. L. *Angewandte Chemie International Edition*, 45, 5792-5795, 2006.

13. "Synthesis of Novel Reversible Shell Cross-Linked Micelles for Controlled Release of Bioactive Agents," Li, Y.; **Lokitz, B. S**.; Armes, S. P.; McCormick, C. L. *Macromolecules*, 39, 2726-2728, 2006.

14. "RAFT Synthesis of a Thermally-Responsive ABC Triblock Copolymer Incorporating N-Acryloxysuccinimide for Facile *In Situ* Formation of Shell Cross-Linked Micelles in Aqueous Media," Li, Y.; **Lokitz, B. S**.; McCormick, C. L. *Macromolecules*, 39, 81-89, 2006.

15. **"**Direct Synthesis of Thermally-Responsive DMA/NIPAM Diblock and DMA/NIPAM/DMA Triblock Copolymers via Aqueous, Room Temperature RAFT Polymerization," Convertine, A. J.; **Lokitz, B. S.**; Vasileva, Y.; Myrick, L. J.; Scales, C. W.; Lowe, A. B.; McCormick, C. L. *Macromolecules*, 5, 1724-1730, 2006.

16. "Polyampholyte Terpolymers of Amphoteric, Amino Acid-Based Monomers with Acrylamide and (3-acrylamidopropyl)trimethyl Ammonium Chloride," Ezell, R. G.; Goreman, I.; **Lokitz, B. S.**; Treat, N.; Mcconaughy, S. D.; McCormick, C. L., *Journal of Polymer Science, Part A: Polymer Chemistry*, 44, 4479-4493, 2006.

17. "Stimuli-Responsive Ampholytic Terpolymers of N-Acryloyl-Valine, Acrylamide, and (3-Acrylamidopropyl) trimethylammonium chloride: Synthesis, Characterization, and Solution Properties," Ezell, R. G; Goreman, I; **Lokitz, B**. **S.**; Ayres, N; McCormick, C. L. *Journal of Polymer Science, Part A: Polymer Chemistry*, 44, 3125-3139, 2006.

18. "Aqueous Room Temperature RAFT Polymerization of Acrylamide and N,N-Dimethylacrylamide," Convertine, A. J; **Lokitz, B. S**.; Lowe, A. B; Scales, C. W; Myrick, L, J; and McCormick, C. L. *Macromolecular Rapid Communications*, 26, 791-795, 2005.

Manuscripts in Preparation or Submitted for Publication

1. Deodhar, C; Soto-Cantu, E; Uhrig, D; Bonnesen, P; **Lokitz, B**; Ankner, J; Kilbey, S. M. "Hydration in Weak Polyelectrolyte Brushes," *submitted to ACS Macro Letters.*

2. Seeber, M.; Galabura, Y.; Burtovvy, R.; **Lokitz, B. S**.; Kilbey S. M.; Luzinov, I. "One-Step Synthesis of Thermally Responsive Polymer Brushes for Control of Surface Properties and Biological Interaction," *In preparation.*

3. Petridis, L.; Ambaye, H.; Jagadamma, S.; Lauter, V.; Kilbey, M.; **Lokitz, B**.; and M. Mayes. "Neutron reflectometry and molecular dynamics simulation analysis of bilayer formation on minerals: Implications for soil organic carbon stabilization," *In preparation*.

4. LeJeune, J.P.; Hinestrosa, J.P.; **Lokitz, B.**; Kilbey II, S.M.; Messman, J.M. "A Modular Approach to Mikto-arm Star Polymers using Click Chemistry," *In preparation.*

5. Verduzco, R.; Hong, S.; **Lokitz, B.** ; Salomon, P; Fernandez-Ballester, L; Sprunt, S.; Gleeson, J. T. "Nematic Bent-Core Liquid Crystal Polymers," A. *In preparation.*

Preprints / non-refereed publications:

1. **Lokitz, B.S.**; Wei, J.; Messman, J.M.; Hinestrosa, J.P.; Ankner, J.; Kilbey II, S.M. "Reactive Polymer Films Based on Poly (2-Vinyl-4,4-Dimethylazlactone) (PVDMA) Synthesized Via RAFT Polymerization," *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2012,** *53(1),* xxx.

2. **Lokitz, B.S.**; Messman, J.M.; Ankner, J.F.; Kilbey II, S.M. "Neutron reflectivity investigation of reactive layers based on poly (2-vinyl-4,4-dimethylazlactone) (PVDMA) synthesized via RAFT polymerization" *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2011,** *52(1),* xxx

3. **Lokitz, B. S.;** Messman, J.; Hinestrosa, J.P.; Ankner, J.F.; Kilbey, II, S.M. Bio-inspired Polymer Scaffolds from Well-defined Block Copolymers of Poly(glycidyl methacrylate) and Poly(2-vinyl-4,4-dimethylazlactone)" *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2010,** *51(2),* 438-439.

4. Soto-Cantu, E.; Deodhar, C.; **Loktiz, B. S.**; Messman, J.M.; Ankner, J.F.; Kilbey, II, S.M. "Synthesis and Characterization of Weak Polyelectrolyte Brushes by a "Clicking-to" Approach," *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2010,** *51(1),* 429-430.

5. **Lokitz, B.S.;** Messman, J.M.; Hinestrosa, J.P.; Ankner, J.F.; Kilbey II, S.M. "Synthesis and Characterization of Poly-2-Vinyl-4,4-Dimethylazlactone (PVDMA) Brushes" *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2009,** *50(1),* 147-148.

6. Hinestrosa, J.P.; **Lokitz, B.S**.; Messman, J.M.; Ankner, J.F.; Kilbey, II, S.M. "Well Defined Base Layers for Clicking Polymer Brushes" *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)* **2009,** *50(1),* 126-127.

7. Messman, J.M.; **Lokitz, B.S**.; Ankner, J.F.; Kilbey II, S.M. "Designing Functionality and Stimuli-Responsiveness into Azlactone-Based Polymers" *Am. Chem. Soc,. Div. Polym. Mater. Sci. & Eng.* **2008,** *99,* 27-28.