

Jamie M. Messman

R&D staff member
Macromolecular Nanomaterials Group
Center for Nanophase Materials Sciences
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Education

St. Norbert College, De Pere, WI	Chemistry	B.S., 1999
University of Southern Mississippi, Hattiesburg, MS	Polymer Science and Engineering	Ph.D., 2004

Professional Experience:

2007–present	Research Staff Member, Macromolecular Nanomaterials Group, Center for Nanophase Materials Sciences Division, ORNL
2004–2006	Postdoctoral Research Associate, Center for Nanophase Materials Sciences and Chemical Sciences Division, ORNL
2003	Early Identification Intern, General Electric Global Research Center, Niskayuna, NY

Research Interests

- Synthesis and characterization of functional monomers and (co)polymers
- Controlled (co)polymer synthesis using anionic, ring-opening, and pseudo-living free radical and cationic polymerization technologies
- Real-time reaction monitoring of monomer synthesis and polymerization using *in-situ* remote probe mid-IR spectroscopy
- Modification of synthetic and natural (co)polymers
- Stimuli-responsive synthetic (co)polymers
- Self-assembly of synthetic (co)polymers
- Biomimetic and biologically active (co)polymers

Professional and Synergistic Activities

International Advisory Board Member – IUPAC World Polymer Congress Macro2012, Blacksburg, VA, June 2012.

Organizer, Session on “Peptides and Polypeptides: From Synthesis and Characterization to Application” at 239th ACS National Meeting, San Francisco, CA, Spring 2010

Discussion Leader, Polymers Gordon Research Conference, Mount Holyoke College, 2009

Organizer, National Polymer Graduate Research Conference sponsored by the American Chemical Society-POLY/PMSE Divisions, Oak Ridge TN, 2007

Invited Reviewer: *Biomacromolecules*; *Polymer*; *Journal of Polymer Science*, *Langmuir*, *Macromolecules*, *Macromolecular Rapid Communications*, and *Australian Journal of Chemistry*, *Polymer*, *Polymer Chemistry* 2004–present

Professional Memberships

American Chemical Society (ACS); Polymer Chemistry (POLY) Division, ACS; Polymeric Materials Science and Engineering (PMSE) Division, ACS; Pi Mu Epsilon, Honorary National Mathematics Society

Publications

Over 20 publications. Full publication (peer-reviewed) list follows CV.

Collaborators

J. Ankner, ORNL
A. Avgeropoulos, University of Ioannina-Greece
C.A. Guymon, University of Iowa
N. Hadjichristidis, University of Athens-Greece
J. Hedrick, IBM Almaden
T. Long, Virginia Tech
Y.-L. Loo, Princeton University
C. McCormick, University of Southern Mississippi
J. Rawlins, University of Southern Mississippi
J. Rimer, University of Houston
B. Sumerlin, Southern Methodist University
R. Toomey, University of South Florida
C. Wade, IBM Almaden
T. Xu, University of California-Berkeley

Graduate and Postdoctoral Advisors:

PhD Advisor: R. F. Storey, University of Southern Mississippi

Postdoctoral Advisors: P. F. Britt, Oak Ridge National Laboratory, and J. W. Mays, University of Tennessee-Knoxville

Thesis Advisor and Postgraduate-Scholar Sponsor: None

Total Graduate Students Advised: 0

Total Postdoctoral Scholars Advised: 1

PUBLICATIONS

Jamie M. Messman, Ph.D.

Center for Nanophase Materials Sciences Division
Oak Ridge National Laboratory
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1. Huang, T.; **Messman, J.M.;*** Hong, K.; Mays, J.W. “Novel Amphiphilic Block Copolymers Derived from the Selective Fluorination and Sulfonation of Poly(styrene-block-1,3-cyclohexadiene)” *J. of Polym. Sci., Part A: Polym. Chem.* **2011**, *50*, 338-345.
2. **Messman, J.M.;*** Goswami, M.; Pickel, D.L.; Uhrig, D.W.; Sumpter, B.G.; Mays, J.W. “Combatting Ionic Aggregation using Dielectric Forces – Combining Modeling/Simulation and Experimental Results to Explain End-capping of Primary Amine Functionalized Polystyrene,” *Polymer Chemistry* **2011**, *2*, 2481-2489. (journal cover).
3. Alonzo, J.; Chen, J.; **Messman, J.;** Yu, X.; Hong, K.; Deng, S.; Swader, O.; Dadmun, M., Ankner, J.F.; Britt, P.; Mays, J.W.; Malagoli, M.; Sumpter, B.G.; Bredas, J-L, Kilbey, S.M. “Assembly and Characterization of Well-Defined High-Molecular-Weight Poly(*p*-phenylene) Polymer Brushes,” *Chemistry of Materials* **2011**, *23*, 4367-4374.
4. Soto-Cantu, E.; Loktitz, B.S.; Hinestrosa, J.P.; Deodhar, C.; Messman, J.M.; Ankner, J.F.; Kilbey II, S.M. “Versatility of Alkyne-Modified Poly(Glycidyl Methacrylate) Layers for Click Reactions,” *Langmuir* **2011**, *27*, 5986–5996.
5. Polizos, G.; Tuncer, E.; Qiu, X.; Aytuğ, T.; Kidder, M.K.; **Messman, J.M.;** Sauer, I. “Nonfunctionalized Polydimethylsiloxane Superhydrophobic Surfaces Based on Hydrophobic-hydrophilic Interactions” *Langmuir*, **2011**, *27*, 2953–2957.
6. Black, M.; **Messman, J.;** Rawlins, J. “Chain Transfer of Vegetable Oil Macromonomers in Acrylic Solution Copolymerization” *Journal of Applied Polymer Science* **2010**, *120*, 1390-1396.
7. Goswami, M.; Sumpter, B.G.; Huang, T.; **Messman, J.M.;** Gido, S.P.; Isaacs-Sodeye, A.I.; Mays, J.W. “Tunable Morphologies from Charged Block Copolymers” *Soft Matter* **2010**, *6*, 6146-6154.
8. Wang, X.; Messman, J.; Mays, J.W.; Baskaran, D. “Polypeptide Grafted Hyaluronan: Synthesis and Characterization” *Biomacromolecules* **2010**, *11*, 2313-2320.
9. Loktitz, B.S.; **Messman, J.M.;** Hinestrosa, J.P.; Alonzo, J.; Verduzco, R. Brown, R.; Osa, M.; Ankner, J.; Kilbey II, S.M. “Dilute Solution Properties and Surface Attachment of RAFT Polymerized 2-Vinyl-4,4-Dimethylazlactone (VDMA)” *Macromolecules* **2009**, *42*, 9018-9026.
10. Pickel, D.L.; Politakos, N.; Avgeropoulos, A.; **Messman, J.M.;*** “A Mechanistic Study of α -Amino Acid-N-Carboxy Anhydride Polymerization: Comparing Initiation and Termination Events in High Vacuum and Traditional Polymerization Techniques” *Macromolecules* **2009**, *42*, 7781-7788.
11. Tuncer, E.; Sauer, I.; James, R.D.; Ellis, A.R.; **Messman, J.M.;** Polyzos, G. ; Aytug, T. “Oven Bag (polyamide 66) as a Cryogenic Dielectric” *Cryogenic* **2009**, *49*, 463-468.

12. **Messman, J.M.***; Lokitz, B.S.; Pickel, J.M.; Kilbey II, S.M. "Highly Tailorable Materials based on 2-Vinyl-4,4-dimethyl azlactone: (Co)Polymerization, Synthetic Manipulation and Characterization" *Macromolecules* **2009**, *42*, 3933-3941.
13. Barringer, J.E.; **Messman, J.M.**; Banaszek, A.L.; Meyer III, H.M.; Kilbey II, S.M. "Immobilization of Biomolecules on Poly(vinylidimethylazlactone)-Containing Surface Scaffolds" *Langmuir* **2009**, *25*, 262-268.
14. Moravek, S.J.; **Messman, J.M.**; Storey, R.F. "Polymerization Kinetics of *rac*-Lactide Initiated with Alcohol/Stannous Octoate Using *In Situ* Attenuated Total Reflectance-Fourier Transform Infrared Spectroscopy: An Initiator Study" *J. of Polym. Sci., Part A: Polym. Chem.* **2009**, *47*, 797-803.
15. Huang, T.; **Messman, J.M.**; Mays, J.W. "A New Fluorinated Polymer Having Two Connected Rings in the Main Chain: Synthesis and Characterization of Fluorinated Poly(1,3-cyclohexadiene)" *Macromolecules* **2008**, *41*, 266-268.
16. Zhang, L.; Nederberg, F.; Pratt, R.; **Messman, J.M.**; Hedrick, J. and Wade, C "Organocatalytic stereoselective polymerization of lactide with super bases" *Journal of the American Chemical Society* **2007**, *129*, 12610-12611.
17. Aliferis, T.; Iatrou, H.; Hadjichristidis, N.; **Messman, J.**; Mays, J. "Synthesis and Characterization of 3- and 4-Arm Star-Block Copolypeptides using Multifunctional Amino Initiators and High Vacuum Techniques" *IUPAC Macromol. Symp.* **2006**, *240*, 12-17.
18. **Messman, J.M.**; Storey, R.F. "Synthesis and Characterization of Multi-Block Copolymers Composed of Poly(5-Methyl-5-benzoyloxycarbonyl-1,3-dioxan-2-one) (PMBC) Outerblocks and Poly(L-lactide) (PLLA) Innerblocks" *J. of Polym. Sci., Part A: Polym. Chem.* **2006**, *44*, 6817-6835.
19. **Messman, J.M.***; Scheuer, A.D.; Storey, R.F. "Synthesis and Characterization of A-B-A Triblock Copolymers Derived from Chloro-telechelic Poly(L-lactide): Combining Ring-Opening Polymerization (ROP) and Atom Transfer Radical Polymerization (ATRP)" *Polymer* **2005**, *46*, 3628-3638.
20. **Messman, J.M.**; Storey, R.F. "Real-Time Monitoring of the Ring-Opening Polymerization of *rac*-Lactide with *In-Situ* ATR-FTIR Spectroscopy with Conduit and Diamond-Composite Sensor Technology" *J. of Polym. Sci., Part A: Polym. Chem.* **2004**, *42*, 6238-6247.