

# David Uhrig

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## Education

University of Alabama-Birmingham	B.A., 1991	(Chemistry Minor)
University of Alabama-Birmingham	M.S., 2000	Chemistry
University of Alabama-Birmingham	Ph.D., 2001	Chemistry

## Research Interests

Synthesis of linear and branched polymers and copolymers of controlled structure, particularly through anionic polymerization; polymer molecular characterization by dilute solution techniques.

## Professional Experience

2007–present	Technical Professional Staff, Macromolecular Nanomaterials Group, ORNL
2004–2007	Research Associate, Oak Ridge Institute of Science and Education/ORNL
2002–2003	Research Associate, Flinders University and the University of South Australia

## Professional and Synergistic Activities

Member, American Chemical Society  
Associate Member, American Scientific Glassblowers Society

## Selected Peer-Reviewed Publications:

- "Impact of chain architecture (branching) on the thermal and mechanical behavior of polystyrene thin films," Jessica M. Torres, Christopher Stafford, David Uhrig, Bryan D. Vogt, *Journal of Polymer Science: Part B: Polymer Physics* (Accepted Nov 18, 2011).
- "High-strain-induced deformation mechanisms in block-graft and multigraft copolymers," R. Schlegel, Y.X. Duan, R. Weidisch, S. Holzer, K. Schneider, M. Stamm, D. Uhrig, J.W. Mays, G. Heinrich, N. Hadjichristidis, *Macromolecules* 2011, 44, 9374-9383.
- "Multigraft copolymer superelastomers: synthesis, morphology, and properties," David Uhrig, Ralf Schlegel, Roland Weidisch, and Jimmy W. Mays, *European Polymer Journal* 2011, 47(4), 560-568.
- "Synthesis of well-defined multigraft copolymers," David Uhrig and Jimmy W. Mays, *Polymer Chemistry* 2011, 2(1) 69-76.
- "Investigations on mechanical properties of PI-PS multigraft copolymers," R. Schlegel, U. Staudinger, M. Thunga, R. Weidisch, G. Heinrich, D. Uhrig, J.W. Mays, H. Iatrou, N. Hadjichristidis, *European Polymer Journal* 2009, 45(10) 2902-2912.
- "Stress softening of multigraft copolymers," R. Schlegel, D. Wilkin, Y. Duan, R. Weidisch, G. Heinrich, D. Uhrig, J.W. Mays, H. Iatrou, N. Hadjichristidis, *Polymer* 2009, 50(26) 6297-6304.
- "Dynamics of A(n)B(n) miktoarm star copolymers," Juan Pablo Hinestroza, David Uhrig, Deanna L. Pickel, S. Michael Kilbey, *Polymer Preprints (ACS, Division of Polymer Chemistry)*, 2009, [Volume 238, page ?something].
- "Synthesis and Characterization of Primary Amine  $\Omega$ -Functionalized Polystyrene," Jamie M. Messman, Deanna L. Pickel, David W. Uhrig, and Jimmy W. Mays, *Polymer Preprints (ACS, Division of Polymer Chemistry)*, 2009 50(1), 141.
- "Self-Assembly of Coil/Liquid-Crystalline Diblock Copolymers in a Liquid Crystal Solvent," Neal R. Scruggs, Rafael Verduzco, David Uhrig, Waliullah Khan, Soo-Young Park, Jyotsana Lal and Julia A. Kornfield, *Macromolecules* 2009, 42(1), 299-307.
- "Interpretation of Hysteresis Behavior of PI-PS Multigraft Copolymers by Adapting to the Dynamic Flocculation Model," Ulrike Staudinger, Ralf Schlegel, Roland Weidisch, Juliane Fritzsche, Manfred Klueppel, Gert Heinrich, Jimmy W. Mays, David Uhrig, Nikos Hadjichristidis, *European Polymer Journal* 2008, 44(11), 3790-3796.
- "Synthesis and Characterization of an ABC Miktoarm Star Terpolymer of Cyclohexadiene, Styrene, and 2-Vinylpyridine," David Uhrig, Kunlun Hong, Jimmy W. Mays, S. Michael Kilbey, II and Phillip F. Britt, *Macromolecules* 2008, 41(23), 9480-9482.

- "The Synthesis and Characterization of Novel Dimethyl- and Diphenyl- Silanediolates," Andrew Schamschurin, David Uhrig, Mark Fisher, Stephen Clarke, Janis Matisons, *Silicon Chemistry* 2008, 3(6), 313-325.
- "Morphology and Tensile Properties of Multigraft Copolymers with Regularly Spaced Tri-, Tetra-, and Hexafunctional Junction Points," Yuqing Zhu, Engin Burgaz, Samuel P. Gido, Ulrike Staudinger, Roland Weidisch, David Uhrig, Jimmy W. Mays, *Macromolecules* 2006, 39, 4428-4436.
- "Experimental Techniques in High-vacuum Anionic Polymerization," David Uhrig and Jimmy Mays, *Journal of Polymer Science: Part A: Polymer Chemistry* 2005, 43, 6179-6222.
- "Role of branching on the structure of brushes formed from comb polymers," Peng Tian, David Uhrig, Jimmy W. Mays, Hiroshi Watanabe, S. Michael Kilbey II, *Macromolecules* 2005, 38, 2524-2529.
- "Synthesis and Structure-Property Relationships for Regular Multigraft Copolymers," Jimmy W. Mays, David Uhrig, Samuel P. Gido, Yuqing Zhu, Roland Weidisch, Hermis Iatrou, Nikos Hadjichristidis, Kunlun Hong, Frederick L. Beyer, Ralf Lach, Matthias Buschnakowski, *Macromol. Symp.* 2004, 215, 111-126.
- "Utility of Interaction Chromatography for Probing Structural Purity of Model Branched Copolymers: 4-Miktoarm Star Copolymer," Soojin Park, Donghyun Cho, Kyuhyun Im, Taihyun Chang, David Uhrig, Jimmy W. Mays, *Macromolecules* 2003, 36, 5834-5838.
- "Synthesis of Combs, Centipedes, and Barbwires: Poly(isoprene-graft-styrene) Regular Multigraft Copolymers with Trifunctional, Tetrafunctional, and Hexafunctional Branch Points," David Uhrig and Jimmy W. Mays, *Macromolecules* 2002, 35(19), 7182-7190.
- "Tetrafunctional Multigraft Copolymers as Novel Thermoplastic Elastomers," Roland Weidisch, Samuel P. Gido, David Uhrig, Hermis Iatrou, Jimmy W. Mays, Nikos Hadjichristidis, *Macromolecules* 2001, 34(18), 6333-6337.
- "Living Anionic Polymerization," Kunlun Hong, David Uhrig, Jimmy W. Mays, *Current Opinion in Solid State and Materials Science* 2000, Volume Date 1999, 4(6), 531-538.
- "Graft Copolymers with Regularly Spaced Tetrafunctional Branch Points: Morphology and Grain Structure," Frederick L. Beyer, Samuel P. Gido, Christine Bueschl, Hermis Iatrou, David Uhrig, Jimmy W. Mays, Mei Ying Chang, Bruce A. Garetz, Nitash P. Balsara, Nora Beck Tan, Nikos Hadjichristidis, *Macromolecules* 2000, 33(6), 2039-2048.
- "Morphological Behavior of A2B2 Star Block Copolymers," Frederick L. Beyer, Samuel P. Gido, David Uhrig, Jimmy W. Mays, Nora Beck Tan, Samuel F. Trevino, *Journal of Polymer Science, Part B: Polymer Physics* 1999, 37(24), 3392-3400.
- "Synthesis of Model Graft Copolymers with Regularly Spaced Trifunctional or Tetrafunctional Branch Points," Kunlun Hong, David Uhrig, Hermis Iatrou, Yiannis Poulos, Nikos Hadjichristidis, N.; Jimmy W. Mays, *Polymer Preprints* 1999, 40(2), 104-105.

**Collaborators Outside ORNL During Past Five Years:** David Bucknall, Georgia Institute of Technology; Bryan Vogt; University of Akron; Roland Weidisch and Ralf Schlegel; Fraunhofer Institute for Mechanics of Materials and University of Halle, Germany; Gregory Beaucage, University of Cincinnati; Nsoki Phambu, Tennessee State University; J. Baschnagl, Institut Charles Sadron, Strasbourg, France; B. Chmelka, J. Jahnke, University of California-Santa Barbara; T. Xu, University of California-Berkely; J. Kornfield and J. Wei, California Institute of Technology; K. Migler and N. Scruggs, National Institute of Standards and Technology, Maryland; Mark Dadmun, University of Tennessee.

**Graduate and Postdoctoral Advisors:**

**Graduate Advisor:** Prof. Jimmy Mays, University of Alabama-Birmingham

**Postdoctoral Advisor:** Janis Gunars Matisons, Flinders University, Adelaide, Australia