

## **Marc Andrew Hillmyer**

*McKnight Presidential Endowed Chair, University of Minnesota*

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### **EDUCATION**

Ph.D. Chemistry, California Institute of Technology 1994  
B.S. Chemistry, University of Florida 1989

### **APPOINTMENTS**

Department of Chemistry – University of Minnesota  
McKnight Presidential Endowed Chair 2015–present  
Distinguished University Teaching Professor 2014–present  
Distinguished McKnight University Professor 2010–present  
Professor 2009–2010  
Elmore H. Northey Associate Professor, Professor 2004–2007, 2007–2009  
Associate Professor 2002–2004  
McKnight Land-Grant Professor 2000–2002  
Assistant Professor 1997–2002

College of Science and Engineering – University of Minnesota  
Director, Center for Sustainable Polymers 2009–present

Department of Chemical Engineering and Materials Science – University of Minnesota  
Graduate Faculty Member 1999–present  
Postdoctoral Research Associate 1994–1997

### **HONORS**

Fellow of the American Chemical Society 2019  
Entrepreneurial Researcher Award (UMN) 2017  
McKnight Presidential Endowed Chair (UMN) 2015  
NSF Division of Materials Research, Special Creativity Extension 2014–2016  
Postbaccalaureate, Graduate, and Professional Education Award (UMN) 2014  
PTN Medema Award 2013  
LE STUDIUM research fellow, Université d'Orléans/CNRS 2012–2013  
Fellow of the Polymer Chemistry (POLY) Division of the ACS 2012  
Carl S. Marvel Creative Polymer Chemistry Award (POLY division of the ACS) 2011  
Distinguished McKnight University Professorship (UMN) 2010  
Institute on the Environment (IonE) Fellow (UMN) 2010  
George W. Taylor/IT Alumni Society Award for Distinguished Teaching (UMN) 2010  
Fellow of the American Association for the Advancement of Science (AAAS) 2009  
Visiting Professor, Université d'Orléans, France 2008  
Arthur K. Doolittle Award (jointly awarded, PMSE division of the ACS) 2007  
George Taylor Distinguished Research Award (UMN) 2007  
Leverhulme Visiting Professor, University of Cambridge 2005–2006  
Best Chemistry Instructor Award (UMN Institute of Technology Student Board) 2005  
Elmore H. Northey Professorship (UMN) 2004–2009  
George Taylor Career Development Award (UMN) 2002  
National Science Foundation CAREER Award 2001–2005  
Packard Fellowship for Science and Engineering 2000–2005  
Schlumberger Limited Foundation Award 2000, 2001  
Camille Dreyfus Teacher-Scholar Award 2000–2005  
McKnight Land-Grant Professorship (UMN) 2000–2002  
DuPont Young Professor Grant 1999–2001  
Research Corporation Research Innovation Award 1998–2001  
3M Company Non-tenured Faculty Award 1998–2002

IBM Graduate Research Fellowship	1992
American Institute of Chemists Student Award	1989
President's Recognition Award (UF); College Scholar Award (UF); Summerville Fellowship in Chemistry (UF)	1989

#### PROFESSIONAL SERVICE

Chair of the ACS Publications Ethics Committee	2019-present
Editor-in-Chief for the ACS journal <i>Macromolecules</i>	2018-present
Leader of the Division of Polymer Chemistry Webinar Initiative	2017, 2018
Co-organizer of "Porous Polymers 2016" an ACS symposium	2016
Past Chair, Chair, Chair Elect, Vice Chair – ACS Division of Polymer Chemistry	2018, 2017, 2016, 2015
Co-organizer for "Sustainable Polymers" an ACS workshop	2020, 2016, 2013
Chair, Vice Chair – Polymers Gordon Conference	2015, 2013
Scientific Committee for a symposium at the E-MRS 2015 Spring Meeting	2015
Co-organizer of "Sustainable Resources and Renewable Resources" at 14 <sup>th</sup> Pacific Polymer Conf.	2015
Co-organizer of "Porous Polymers 2014" an ACS symposium	2014
Co-organizer of "Sustainable Polymers, Processes and Product Applications" an ACS symposium	2014
ACS Division of Polymer Chemistry Awards Committee co-chair	2011–2014
Presidential Green Chemistry Award Challenge selection panel	2012
International Advisory Committee MACRO 2012 - IUPAC World Polymer Congress	2012
Co-organizer of "Next-Generation Renewable Polymers" an ACS symposium	2012
Steering Committee - Minnesota Green Chemistry Forum	2010–2012
Scientific Committee for 19th Annual BioEnvironmental Polymer Society Meeting	2011
Participant in Chemical Sciences and Society Symposia (CS3) meeting on "Sustainable Materials"	2010
Co-organizer of "Functional Block Copolymer Assemblies" a PacifiChem symposium	2010
Co-organizer of "Porous Polymers" an ACS symposium	2009
Associate Editor for the ACS journal <i>Macromolecules</i>	2008–2017
Co-editor for "Biorenewable Polymers" special issue of <i>Polymer Reviews</i>	2007
Co-organizer of "Polymers from Renewable Resources" an ACS Symposium	2007
Editorial Advisory Board <i>Macromolecular Chemistry and Physics</i>	2007–2010
Co-organizer of "Multicompartment Micelles" an ACS Symposium	2006
International Advisory Committee for the RSC conference <i>Materials Chemistry 8</i>	2006–2007
Editorial Advisory Board for <i>Polymer</i>	2005–2009
Los Alamos National Lab Center for Integrated Nanotechnologies proposal review panel	2005–2007
Editorial Advisory Board <i>Polymer Reviews</i>	2005–2010
Editorial Advisory Board for the ACS journal <i>Macromolecules</i>	2004–2006
Co-organizer of "Polymer Chemistry for Physicists" short course, APS Meeting	2003
Co-editor for "Materials for the 21st Century Special Issue" for <i>J. Phys. Org. Chem.</i>	2000
Co-organizer "Macromolecular Synthesis by Selective Chemical Modification" an ACS Symposium	2000
ACS Division of Polymer Chemistry co-rep. to the ACS Macromolecular Secretariat	1998–2007

## SELECTED INVITED LECTURES

Plenary lecture – Future of Polymer Chemistry – Daejeon, Korea	May 2019
Massachusetts Inst. of Tech. Dept. of Chemistry Merck Lectureship – Cambridge, Massachusetts	May 2019
Plenary lecture – 6th International Frontiers in Polymer Science Symposium – Budapest, Hungary	May 2019
College of Engineering Lecture Series – University of Georgia – Athens, Georgia	February 2019
Covestro Lecture – University of Southern Mississippi, School of Polymers – Hattiesburg, MS	February 2019
Kritzler Lecture – Ohio Northern University – Ada, Ohio	February 2019
Xingda Lecture – Peking University College of Chemistry and Molecular Eng. – Peking, China	December 2018
Distinguished Lecturer – University of Massachusetts, Polymer Sci. and Eng. – Amherst, Mass	October 2018
Plenary Lecture - 10th ECNP Int. Conf. on Nanost. Polym. & Nanocomp. – San Sebastian, Spain	October 2018
Inaugural Distinguished Lecturer - University of Waterloo, Inst. Polymer Research – Waterloo, Canada	May 2018
Aldrich Lecture - UC Berkeley, Department of Chemistry – Berkeley, California	January 2017
Plenary Lecture Intl. Conf. on Polymer Sci. & Tech. (MACRO2017) – Thiruvananthapuram, India	January 2017
Plenary Lecture - Warwick Polymers 2016 – Warwick, England	July 2016
Plenary Lecture - 8 <sup>th</sup> Annual Triangle Soft Matter Workshop – Durham, North Carolina	May 2016
Plenary Lecture - 1 <sup>st</sup> Annual Green Materials Symposium – London, England	December 2015
Whitby Memorial Lectureship - University of Akron, Dept. of Polymer Sci. – Akron, Ohio	May 2015
CSE Public Lecture – UMN College of Science and Engineering – Minneapolis, Minnesota	January 2015
Dow Lecture in Sustainability - Colorado St. Univ., Dept. of Chem. – Ft. Collins, Colorado	October 2014
Xerox Lecture - Univ. of British Columbia, Dept. of Chemistry – Vancouver, Canada	September 2014
Keynote Lecture - Canadian High Polymer Forum – Gananoque, Canada	July 2014
Bayer Lecture - Cornell University, Dept. of Chemistry & Chemical Biology – Ithaca, NY	November 2013
Aldrich Lecture - Columbia University, Department of Chemistry – New York, NY	October 2013
Plenary Lecture - 2013 Dutch Polymer Days Conference – Lunteren, The Netherlands	March 2013
Plenary Lecture - Warwick 2012 – Warwick, England	July 2012
Grande Conférence IUPAC - Université de Montréal, Dept. of Chem.– Montreal, Canada	March 2012
Keynote Lecture - 2011 Australasian Polymer Symposium – Coffs Harbour, Australia	February 2011
Plenary Lecture - Int. Symp. on Nano Structured Polymeric Materials – Pohang, Korea	November 2010
Plenary Lecture - Virginia Tech Technical Conference and Review – Blacksburg, Virginia	October 2010
Plenary Lecture - 9 <sup>th</sup> National Graduate Research Polymer Conference – Chapel Hill, NC	June 2010

## PEER-REVIEWED PUBLICATIONS

- (397) Connell, R.; Keil, J.; Peterson, C.; Hillmyer, M. A.; Ferry, V. E. – CdSe/CdS–poly(cyclohexylethylene) thin film luminescent solar concentrators – *APL Mater.* **2019**, *7*, 101123. [10.1063/1.5121441](https://doi.org/10.1063/1.5121441)
- (396) Pitet, L. M.; Chamberlin, B. M.; Hauser, A. W.; Hillmyer, M. A. – Dispersity and architecture driven self-assembly and confined crystallization of symmetric branched block copolymers – *Polym. Chem.* **2019**, *10*, 5385–5395. [10.1039/c9py01173k](https://doi.org/10.1039/c9py01173k)
- (395) Haugan, I. N.; Lee, B.; Maher, M. J.; Zografos, A.; Schibur, H. J.; Jones, S. D.; Hillmyer, M. A.; Bates, F. S. – Physical Aging of Polylactide-Based Graft Block Polymers – *Macromolecules* **2019**, *52*, 8878–8894. [10.1021/acs.macromol.9b01434](https://doi.org/10.1021/acs.macromol.9b01434)
- (394) Johnson, L. M.; Hillmyer, M. A. – Critical Excipient Properties for the Dissolution Enhancement of Phenytoin – *ACS Omega* **2019**, *4*, 19116–19127. [10.1021/acsomega.9b02383](https://doi.org/10.1021/acsomega.9b02383)
- (393) Dong, H.; Liffland, S.; Hillmyer, M. A.; Chang, C. Y. – Engineering in Vivo Production of  $\alpha$ -Branched Polyesters – *J. Am. Chem. Soc.* **2019**, *141*, 16877–16883. [10.1021/jacs.9b08585](https://doi.org/10.1021/jacs.9b08585)
- (392) Peterson, C.; Hillmyer, M. A. – Fast Photochromic Dye Response in Rigid Block Polymer Thermosets – *ACS Appl. Polym. Mater.* **2019**, *1*, 2778–2786. [10.1021/acsapm.9b00741](https://doi.org/10.1021/acsapm.9b00741)
- (391) Ricarte, R. G.; Van Zee, N. J.; Li, Z.; Johnson, L. M.; Lodge, T. P.; Hillmyer, M. A. – Recent Advances in Understanding the Micro- and Nanoscale Phenomena of Amorphous Solid Dispersions – *Mol. Pharmaceutics* **2019**, *16*, 4089–4103. [10.1021/acs.molpharmaceut.9b00601](https://doi.org/10.1021/acs.molpharmaceut.9b00601)
- (390) Nietzel, A. E.; Barreda, L.; Trotta, J. T.; Fahnhorst, G. W.; Haversang, T. J.; Hoyer, T. R.; Fors, B. P.; Hillmyer, M. A. – Hydrolytically-degradable homo- and copolymers of a strained exocyclic hemiacetal ester – *Polym. Chem.* **2019**, *10*, 4573–4583. [10.1039/C9PY00797K](https://doi.org/10.1039/C9PY00797K)
- (389) Hampu, N.; Bates, M. W.; Vidil, T.; Hillmyer, M. A. – Bicontinuous Porous Nanomaterials from Block Polymers Radically Cured in the Disordered State for Size-Selective Membrane Applications – *ACS Appl. Nano Mater.* **2019**, *2*, 4567–4577. [10.1021/acsanm.9b00922](https://doi.org/10.1021/acsanm.9b00922)
- (388) Watts, A.; Hillmyer, M. A. – Aliphatic Polyester Thermoplastic Elastomers Containing Hydrogen- Bonding Ureidopyrimidinone Endgroups – *Biomacromolecules* **2019**, *20*, 2598–2609. [10.1021/acs.biomac.9b00411](https://doi.org/10.1021/acs.biomac.9b00411)
- (387) Barreda, L.; Shen, Z.; Chen, Q. P.; Lodge, T. P.; Siepmann, J. I.; Hillmyer, M. A. – Synthesis, Simulation, and Self-Assembly of a Model Amphiphile To Push the Limits of Block Polymer Nanopatterning – *Nano Lett.* **2019**, *19*, 4458–4462. [10.1021/acs.nanolett.9b01248](https://doi.org/10.1021/acs.nanolett.9b01248)
- (386) Hampu, N.; Hillmyer, M. A. – Temporally Controlled Curing of Block Polymers in the Disordered State Using Thermally Stable Photoacid Generators for the Preparation of Nanoporous Membranes – *ACS Appl. Polym. Mater.* **2019**, *1*, 1148–1154. [10.1021/acsapm.9b00150](https://doi.org/10.1021/acsapm.9b00150)
- (385) Lee, B.; Onbulak, S.; Xu, Y.; Topolkaraev, V.; McEneaney, R.; Bates, F. S.; Hillmyer, M. A. – Investigation of Micromechanical Behavior and Voiding of Polyethylene Terephthalate/Polyethylene-stat-methyl Acrylate Blends during Tensile Deformation – *Ind. Eng. Chem. Res.* **2019**, *58*, 6402–6412. [10.1021/acs.iecr.8b06362](https://doi.org/10.1021/acs.iecr.8b06362)
- (384) Yee, G. M.; Wang, T.; Hillmyer, M. A.; Tonks, I. A. – Mechanistic Study of Palladium-Catalyzed Hydroesterificative Copolymerization of Vinyl Benzyl Alcohol and CO – *Organometallics* **2019**, *38*, 1778–1786. [10.1021/acs.organomet.9b00091](https://doi.org/10.1021/acs.organomet.9b00091)
- (383) Amador, A. G.; Watts, A.; Nietzel, A. E.; Hillmyer, M. A. – Entropically Driven Macrolide Polymerizations for the Synthesis of Aliphatic Polyester Copolymers Using Titanium Isopropoxide – *Macromolecules* **2019**, *52*, 2371–2383. [10.1021/acs.macromol.9b00065](https://doi.org/10.1021/acs.macromol.9b00065)
- (382) De Hoe, G. X.; Zumstein, M. T.; Getzinger, G. J.; Rügsegger, I.; Kohler, H.-P. E.; Mauer-Jones, M. A.; Sander, M.; Hillmyer, M. A.; McNeill, K. – Photochemical Transformation of Poly(butylene adipate-co- terephthalate) and Its Effects on Enzymatic Hydrolyzability – *Environ. Sci. Tech* **2019**, *53*, 2472–2481. [10.1021/acs.est.8b06458](https://doi.org/10.1021/acs.est.8b06458)
- (381) DeWilde, J. F.; Rangnekar, E. P.; Ting, J. M.; Franek, J. E.; Bates, F. S.; Hillmyer, M. A.; Blank, D. A. – Evaluating Large-Scale STEM Outreach Efficacy with a Consistent Theme: Thermodynamics for Elementary School Students – *ACS Omega* **2019**, *4*, 2661–2668. [10.1021/acsomega.8b03156](https://doi.org/10.1021/acsomega.8b03156)

- (380) Brutman, J. P.; Fortman, D. J.; De Hoe, G. X.; Dichtel, W. R.; Hillmyer, M. A. – Mechanistic Study of Stress Relaxation in Urethane-Containing Polymer Networks – *J. Chem. Phys. B* **2019**, *123*, 1432–1441. [10.1021/acs.jpcc.8b11489](https://doi.org/10.1021/acs.jpcc.8b11489)
- (379) Trotta, J. T.; Watts, A.; Wong, A. R.; LaPointe, A. M.; Hillmyer, M. A.; Fors, B. P. – Renewable Thermosets and Thermoplastics from Itaconic Acid – *ACS Sustainable Chem. Eng.* **2019**, *7*, 2691–2701. [10.1021/acssuschemeng.8b05766](https://doi.org/10.1021/acssuschemeng.8b05766)
- (378) Hill, S. K. E.; Connell, R.; Peterson, C.; Hollinger, J.; Hillmyer, M. A.; Kortshagen, U.; Ferry, V. E. – Silicon Quantum Dot–Poly(methyl methacrylate) Nanocomposites with Reduced Light Scattering for Luminescent Solar Concentrators – *ACS Photonics* **2019**, *6*, 170–180. [10.1021/acsp Photonics.8b01346](https://doi.org/10.1021/acsp Photonics.8b01346)
- (377) Dirlam, P. T.; Goldfeld, D. J.; Dykes, D. C.; Hillmyer, M. A. – Polylactide Foams with Tunable Mechanical Properties and Wettability using a Star Polymer Architecture and a Mixture of Surfactants – *ACS Sustainable Chem. Eng.* **2019**, *7*, 1698–1706. [10.1021/acssuschemeng.8b05461](https://doi.org/10.1021/acssuschemeng.8b05461)
- (376) Lundberg, D. J.; Lundberg, D. J.; Hillmyer, M. A.; Dauenhauer, P. J. – Techno-economic Analysis of a Chemical Process to Manufacture Methyl- $\epsilon$ -caprolactone from Cresols – *ACS Sustainable Chem. Eng.* **2018**, *6*, 15316–15324. [10.1021/acssuschemeng.8b03774](https://doi.org/10.1021/acssuschemeng.8b03774)
- (375) Fortman, D. J.; Brutman, J. P.; De Hoe, G. X.; Snyder, R. L.; Dichtel, W. R.; Hillmyer, M. A. – Approaches to Sustainable and Continually Recyclable Cross-Linked Polymers – *ACS Sustainable Chem. Eng.* **2018**, *6*, 11145–11159. [10.1021/acssuschemeng.8b02355](https://doi.org/10.1021/acssuschemeng.8b02355)
- (374) Larsen, M. B.; Wang, S. -J.; Hillmyer, M. A. – Poly(allyl alcohol) Homo- and Block Polymers by Postpolymerization Reduction of an Activated Polyacrylamide – *J. Am. Chem. Soc.* **2018**, *140*, 11911–11915. [10.1021/jacs.8b07542](https://doi.org/10.1021/jacs.8b07542)
- (373) Wang, C.; Chopade, S.; Guo, Y.; Early, J. T.; Tang, B.; Wang, E.; Hillmyer, M. A.; Lodge, T. P.; Sun, C. C. – Preparation, Characterization, and Formulation Development of Drug–Drug Protic Ionic Liquids of Diphenhydramine with Ibuprofen and Naproxen – *Mol. Pharmaceutics* **2018**, *15*, 4190–4201. [10.1021/acs.molpharmaceut.8b00569](https://doi.org/10.1021/acs.molpharmaceut.8b00569)
- (372) Altintas, O.; Speros, J. C.; Bates, F. S.; Hillmyer, M. A. – Straightforward synthesis of model polystyrene- block-poly(vinyl alcohol) diblock polymers – *Polym. Chem.* **2018**, *9*, 4243–4250. [10.1039/c8py00937f](https://doi.org/10.1039/c8py00937f)
- (371) Yee, G. M.; Hillmyer, M. A.; Tonks, I. A. – Bioderived Acrylates from Alkyl Lactates via Pd-Catalyzed Hydroesterification – *ACS Sustainable Chem. Eng.* **2018**, *6*, 9579–9584. [10.1021/acssuschemeng.8b02359](https://doi.org/10.1021/acssuschemeng.8b02359)
- (370) Chen, Q. P.; Barreda, L.; Oquendo, L. E.; Hillmyer, M. A.; Lodge, T. P.; Siepmann, J. I. – Computational Design of High- $\chi$  Block Oligomers for Accessing 1 nm Domains – *ACS Nano* **2018**, *12*, 4351–4361. [10.1021/acsnano.7b09122](https://doi.org/10.1021/acsnano.7b09122)
- (369) Haugan, I. N.; Maher, M. J.; Chang, A. B.; Lin, T. -P.; Grubbs, R. H.; Hillmyer, M. A.; Bates, F. S. – Consequences of Grafting Density on the Linear Viscoelastic Behavior of Graft Polymers – *ACS Macro Lett.* **2018**, *7*, 525–530. [10.1021/acsmacrolett.8b00116](https://doi.org/10.1021/acsmacrolett.8b00116)
- (368) Zhu, Y.; Radlauer, M. R.; Schneiderman, D. K.; Shaffer, M. S. P.; Hillmyer, M. A.; Williams, C. K. – Multiblock Polyesters Demonstrating High Elasticity and Shape Memory Effects – *Macromolecules* **2018**, *51*, 2466–2475. [10.1021/acs.macromol.7b02690](https://doi.org/10.1021/acs.macromol.7b02690)
- (367) Savoji, M. T.; Zhao, D.; Muisener, R. J.; Schimossek, K.; Schoeller, K.; Lodge, T. P.; Hillmyer, M. A. – Poly(alkyl methacrylate)-Grafted Polyolefins as Viscosity Modifiers for Engine Oil: A New Mechanism for Improved Performance – *Ind. Eng. Chem. Res.* **2018**, *57*, 1840–1850. [10.1021/acs.iecr.7b04634](https://doi.org/10.1021/acs.iecr.7b04634)
- (366) De Hoe, G. X.; Zumstein, M. T.; Tiegs, B. J.; Brutman, J. P.; McNeill, K. P.; Sander, M.; Coates, G. W.; Hillmyer, M. A. – Sustainable Polyester Elastomers from Lactones: Synthesis, Properties, and Enzymatic Hydrolyzability – *J. Am. Chem. Soc.* **2018**, *140*, 963–973. [10.1021/jacs.7b10173](https://doi.org/10.1021/jacs.7b10173)
- (365) Snyder, R. L.; Fortman, D. J.; De Hoe, G. X.; Hillmyer, M. A.; Dichtel, W. R. – Reprocessable Acid-Degradable Polycarbonate Vitrimers – *Macromolecules* **2018**, *51*, 389–397. [10.1021/acs.macromol.7b02299](https://doi.org/10.1021/acs.macromol.7b02299)
- (364) Larsen, M. B.; Herzog, S. E.; Quilter, H. C.; Hillmyer, M. A. – Activated Polyacrylamides as Versatile Substrates for Postpolymerization Modification – *ACS Macro Lett.* **2018**, *7*, 122–126. [10.1021/acsmacrolett.7b00896](https://doi.org/10.1021/acsmacrolett.7b00896)