




## Robert M. Waymouth

Robert Eckles Swain Professor in Chemistry and, by courtesy, of Chemical Engineering

 Curriculum Vitae available Online

### CONTACT INFORMATION

#### • Administrative Contact

Teresa Throckmorton - Administrative Associate

**Email** [tsthrock@stanford.edu](mailto:tsthrock@stanford.edu)

**Tel** (650) 725-9741

### Bio

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#### BIO

Robert Eckles Swain Professor in Chemistry Robert Waymouth investigates new catalytic strategies to create useful new molecules, including sustainable polymers, synthetic fuels, and bioactive molecules. In one such breakthrough, Professor Waymouth and IBM researcher Jim Hendrick opened a new path for production of environmentally sustainable plastics and improved plastics recycling, earning recognition in the 2012 Presidential Green Chemistry Award.

Born in 1960 in Warner Robins, Georgia, Robert Waymouth studied chemistry and mathematics at Washington and Lee University in Lexington, Virginia (B.S. and B.A., respectively, both summa cum laude, 1982). He developed an interest in synthetic and mechanistic organometallic chemistry during his doctoral studies in chemistry at the California Institute of Technology under Professor R.H. Grubbs (Ph.D., 1987). His postdoctoral research with Professor Piero Pino at the Institut für Polymere, ETH Zurich, Switzerland, focused on catalytic hydrogenation with chiral metallocene catalysts. He joined the Stanford University faculty as assistant professor in 1988, becoming full professor in 1997 and in 2000 the Robert Eckles Swain Professor of Chemistry.

Today, the Waymouth Group applies mechanistic principles to develop new concepts in catalysis, with particular focus on the development of organometallic and organic catalysts for the synthesis of complex macromolecular architectures. In organometallic catalysis, the group devised a highly selective alcohol oxidation catalyst that selectively oxidizes unprotected polyols and carbohydrates to alpha-hydroxyketones. The Waymouth group pioneered the development of catalysts that can access multiple kinetic states during a polymerization reaction in order to control sequence distribution. They devised a novel strategy for the synthesis of elastomeric polypropylene utilizing a metallocene catalyst whose structure was designed to interconvert between chiral and achiral coordination geometries on the timescale of the synthesis of a single polymer chain.

In collaboration with Jim Hedrick of IBM laboratories, the Waymouth Group has developed an extensive platform of organic catalysts for the controlled ring-opening polymerization of lactones, carbonates and other heterocyclic monomers. Mechanistic studies of nucleophilic N-heterocyclic carbene catalysts revealed an unusual zwitterionic ring-opening polymerization method which enabled the synthesis of high molecular weight cyclic polymers, a novel topology for these biodegradable and biocompatible macromolecules. In collaboration with the Wender group, the Waymouth group has devised selective organocatalytic strategies for the synthesis

of functional degradable polymers and oligomers that function as "molecular transporters" to deliver drugs and probes into cells. These efforts combine elements of mechanistic organic and organometallic chemistry, polymer synthesis, and homogeneous catalysis to rationally design new macromolecular structures.

## ACADEMIC APPOINTMENTS

- Professor, Chemistry
- Professor (By courtesy), Chemical Engineering
- Member, Bio-X
- Faculty Fellow, Stanford ChEM-H
- Affiliate, Stanford Woods Institute for the Environment

## ADMINISTRATIVE APPOINTMENTS

- Co-chair: Stanford Task Force on Advancing the Culture of Laboratory Safety, Stanford University, (2013-2014)

## HONORS AND AWARDS

- Presidential Green Chemistry Challenge Award, Environmental Protection Agency (2012)
- Cooperative Research Award in Polymer Science and Engineering, American Chemical Society PMSE Division (2009)
- Bass Fellow in Undergraduate Education, Stanford University (2005)
- Alexander von Humboldt Stiftung Award, Alexander von Humboldt Foundation (2001)
- Walter J. Gores Award for Excellence in Teaching, Stanford University (1997)
- Wilhelm Manchot Professorship, Technical University of Munich, Wilhelm Manchot Foundation (1997)
- Alan T. Waterman Award, National Science Foundation (1996)
- Arthur C. Cope Scholar Award, American Chemical Society (1995)
- Fresenius Award, Phi Lambda Upsilon, Honorary Chemical Society (1995)
- Bing Fellowship, Undergraduate Teaching Award, Stanford University (1994)
- A.P. Sloan Fellow, A.P. Sloan Foundation (1993)
- Undergraduate Teaching Award, Phi Beta Kappa, Stanford University (1993)
- Union Carbide Innovation Award, Union Carbide (1993)
- Young Investigator, National Science Foundation (1992)
- James L. Howe Chemistry Award, Blue Ridge Section, American Chemical Society (1982)

## BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Science Advisory Board Member, KAUST Catalysis Center (2014 - 2016)
- International Advisory Board Member, International Symposium on Homogeneous Catalysis (2008 - 2016)
- Editorial Board Member, Journal of Polymer Science, Chemistry (2000 - 2016)

## PROFESSIONAL EDUCATION

- Postdoc, Institut für Polymere, ETH Zurich, Switzerland, Catalysis (1988)
- PhD, California Institute of Technology, Chemistry (1987)
- BS, Washington and Lee University, Chemistry (1982)
- BA, Washington and Lee University, Mathematics (1982)

## PATENTS

- Christina Cooley, James Hedrick, Matthew Kiesewetter, Fredrik Nederberg, Robert M. Waymouth, Paul A. Wender. "United States Patent 7,939,621 B2 Cyclic carbonate monomers and oligocarbonate molecular transporters", Leland Stanford Junior University, May 10, 2011

## LINKS

- Waymouth Group: <http://waymouthlab.stanford.edu/>

## Teaching

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### COURSES

#### 2016-17

- Advanced Inorganic Chemistry: CHEM 155, CHEM 255 (Spr)
- Chemical Principles I: CHEM 31A (Aut)

#### 2015-16

- Advanced Inorganic Chemistry: CHEM 155, CHEM 255 (Spr)
- Chemical Principles I: CHEM 31A (Aut)

#### 2014-15

- Advanced Inorganic Chemistry: CHEM 155, CHEM 255 (Spr)
- Chemical Principles I: CHEM 31A (Aut)

#### 2013-14

- Advanced Inorganic Chemistry: CHEM 155, CHEM 255 (Spr)
- Chemical Principles I: CHEM 31A (Aut)

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Timothy Blake, Laura Dornan

#### Doctoral Dissertation Co-Advisor (AC)

Colin McKinlay

#### Doctoral Dissertation Reader (AC)

Alexander Burckle, Zhihua Chen, Graham Dick, David Hanifi, Hsiao-Tieh Hsu, Chao-I Hung, Melanie Huttner, James Mack, Mary Anne Manumpil, Ryan Quiroz, Srinivasan Ramakrishnan, Matthew Stevens, Yew Chin Teo

#### Doctoral Dissertation Advisor (AC)

Keith Armstrong, Naomi Clayman, Francis Greene, Wilson Ho, Binhong Lin, Rebecca McClellan, Elizabeth McLoughlin, Katherine Walker, Weiwei Wu

## Publications

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### PUBLICATIONS

- **Charge-altering Releasable Transporters (CARTs) for the delivery and release of messenger RNA in living animals** *Proceedings of the National Academy of Sciences*  
McKinlay, C. J., Vargas, J. R., Blake, T. R., Hardy, J. W., Kanada, M., Contag, C. H., Wender, P. A., Waymouth, R. M.  
2017; 114: E448-E456
- **Fast and selective ring-opening polymerizations by alkoxides and thioureas.** *Nature chemistry*  
Zhang, X., Jones, G. O., Hedrick, J. L., Waymouth, R. M.  
2016; 8 (11): 1047-1053
- **Zwitterionic Ring-Opening Polymerization of N-Substituted Eight-Membered Cyclic Carbonates to Generate Cyclic Poly(carbonate)s** *ACS MACRO LETTERS*

- Chang, Y. A., Rudenko, A. E., Waymouth, R. M.  
2016; 5 (10): 1162-1166
- **Catalytic Carbonylative Spirolactonization of Hydroxycyclopropanols.** *Journal of the American Chemical Society*  
Davis, D. C., Walker, K. L., Hu, C., Zare, R. N., Waymouth, R. M., Dai, M.  
2016; 138 (33): 10693-10699
  - **Reversible Electropolymerization of Nickel Complexes Based on Redox-Mediated Ligand Exchange** *CHEMISTRYSELECT*  
Rudenko, A. E., Clayman, N. E., Maclaren, J. K., Waymouth, R. M.  
2016; 1 (13): 3491-3496
  - **Selective Catalytic Oxidation of Unprotected Carbohydrates** *ACS CATALYSIS*  
Chung, K., Waymouth, R. M.  
2016; 6 (7): 4653-4659
  - **Methane or methanol-oxidation dependent synthesis of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) by obligate type II methanotrophs** *PROCESS BIOCHEMISTRY*  
Myung, J., Flanagan, J. C., Waymouth, R. M., Criddle, C. S.  
2016; 51 (5): 561-567
  - **Cell-Penetrating, Guanidinium-Rich Oligophosphoesters: Effective and Versatile Molecular Transporters for Drug and Probe Delivery** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
McKinlay, C. J., Waymouth, R. M., Wender, P. A.  
2016; 138 (10): 3510-3517
  - **Experimental and Theoretical Study of CO<sub>2</sub> Insertion into Ruthenium Hydride Complexes.** *Inorganic chemistry*  
Ramakrishnan, S., Waldie, K. M., Warnke, I., De Crisci, A. G., Batista, V. S., Waymouth, R. M., Chidsey, C. E.  
2016; 55 (4): 1623-1632
  - **Bioorthogonal Catalysis: A General Method To Evaluate Metal Catalyzed Reactions in Real Time in Living Systems Using a Cellular Luciferase Reporter System** *BIOCONJUGATE CHEMISTRY*  
Hsu, H., Trantow, B. M., Waymouth, R. M., Wender, P. A.  
2016; 27 (2): 376-382
  - **Electrooxidation of Alcohols with Electrode-Supported Transfer Hydrogenation Catalysts** *ACS CATALYSIS*  
Buonaiuto, M., De Crisci, A. G., Jaramillo, T. F., Waymouth, R. M.  
2015; 5 (12): 7343-7349
  - **A Simple and Facile Approach to Aliphatic N-Substituted Functional Eight-Membered Cyclic Carbonates and Their Organocatalytic Polymerization** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Venkataraman, S., Ng, V. W., Coady, D. J., Horn, H. W., Jones, G. O., Fung, T. S., Sardon, H., Waymouth, R. M., Hedrick, J. L., Yang, Y. Y.  
2015; 137 (43): 13851-13860
  - **Catalytic Role of Multinuclear Palladium-Oxygen Intermediates in Aerobic Oxidation Followed by Hydrogen Peroxide Disproportionation** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Ingram, A. J., Walker, K. L., Zare, R. N., Waymouth, R. M.  
2015; 137 (42): 13632-13646
  - **Catalytic Dimerization of Crotonates** *ACS CATALYSIS*  
Flanagan, J. C., Kang, E. J., Strong, N. I., Waymouth, R. M.  
2015; 5 (9): 5328-5332
  - **Cyclopropanimine Superbases: Competitive Initiation Processes in Lactide Polymerization** *ACS MACRO LETTERS*  
Stukenbroeker, T. S., Bandar, J. S., Zhang, X., Lambert, T. H., Waymouth, R. M.  
2015; 4 (8): 853-856
  - **Structurally Dynamic Hydrogels Derived from 1,2-Dithiolanes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Barcan, G. A., Zhang, X., Waymouth, R. M.  
2015; 137 (17): 5650-5653

- **N-Heterocyclic Carbene-Catalyzed Ring Opening Polymerization of  $\epsilon$ -Caprolactone with and without Alcohol Initiators: Insights from Theory and Experiment.** *journal of physical chemistry. B*  
Jones, G. O., Chang, Y. A., Horn, H. W., Acharya, A. K., Rice, J. E., Hedrick, J. L., Waymouth, R. M.  
2015; 119 (17): 5728-5737
- **Organocatalytic Ring-Opening Polymerization of Trimethylene Carbonate To Yield a Biodegradable Polycarbonate** *JOURNAL OF CHEMICAL EDUCATION*  
Chan, J. M., Zhang, X., Brennan, M. K., Sardon, H., Engler, A. C., Fox, C. H., Frank, C. W., Waymouth, R. M., Hedrick, J. L.  
2015; 92 (4): 708-713
- **Ion pairing effects in the zwitterionic ring opening polymerization of delta-valerolactone** *POLYMER CHEMISTRY*  
Chang, Y. A., Waymouth, R. M.  
2015; 6 (29): 5212-5218
- **Synthesis and Topological Trapping of Cyclic Poly(alkylene phosphates)** *MACROMOLECULES*  
Stukenbroeker, T. S., Solis-Ibarra, D., Waymouth, R. M.  
2014; 47 (23): 8224-8230
- **Disassembly and reassembly of polyhydroxyalkanoates: Recycling through abiotic depolymerization and biotic repolymerization** *BIORESOURCE TECHNOLOGY*  
Myung, J., Strong, N. I., Galega, W. M., Sundstrom, E. R., Flanagan, J. C., Woo, S., Waymouth, R. M., Criddle, C. S.  
2014; 170: 167-174
- **Zwitterionic Ring Opening Polymerization with Isothioureas** *ACS MACRO LETTERS*  
Zhang, X., Waymouth, R. M.  
2014; 3 (10): 1024-1028
- **Organocatalytic Ring-Opening Polymerization of Morpholinones: New Strategies to Functionalized Polyesters** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Blake, T. R., Waymouth, R. M.  
2014; 136 (26): 9252-9255
- **Experimental and Computational Studies on the Mechanism of Zwitterionic Ring-Opening Polymerization of delta-Valerolactone with N-Heterocyclic Carbenes** *JOURNAL OF PHYSICAL CHEMISTRY B*  
Acharya, A. K., Chang, Y. A., Jones, G. O., Rice, J. E., Hedrick, J. L., Horn, H. W., Waymouth, R. M.  
2014; 118 (24): 6553-6560
- **Trinuclear  $pd_3$   $o_2$  intermediate in aerobic oxidation catalysis.** *Angewandte Chemie (International ed. in English)*  
Ingram, A. J., Solis-Ibarra, D., Zare, R. N., Waymouth, R. M.  
2014; 53 (22): 5648-5652
- **Zwitterionic Ring-Opening Polymerization: Models for Kinetics of Cyclic Poly(caprolactone) Synthesis** *MACROMOLECULES*  
Brown, H. A., Xiong, S., Medvedev, G. A., Chang, Y. A., Abu-Omar, M. M., Caruthers, J. M., Waymouth, R. M.  
2014; 47 (9): 2955-2963
- **Titanium Bis(amidates) Bearing Electron Donating Pendant Arms as Catalysts for Stereospecific Polymerization of Propylene** *ORGANOMETALLICS*  
Elkin, T., Botoshansky, M., Waymouth, R. M., Eisen, M. S.  
2014; 33 (4): 840-843
- **Zwitterionic Polymerization to Generate High Molecular Weight Cyclic Poly(Carbosiloxane)s** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Brown, H. A., Chang, Y. A., Waymouth, R. M.  
2013; 135 (50): 18738-18741
- **Zwitterionic Ring-Opening Polymerization for the Synthesis of High Molecular Weight Cyclic Polymers** *ACCOUNTS OF CHEMICAL RESEARCH*  
Brown, H. A., Waymouth, R. M.  
2013; 46 (11): 2585-2596
- **A Renewable Lignin-Lactide Copolymer and Application in Biobased Composites** *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*  
Chung, Y., Olsson, J. V., Li, R. J., Frank, C. W., Waymouth, R. M., Billington, S. L., Sattely, E. S.  
2013; 1 (10): 1231-1238

- **Electrooxidation of alcohols catalyzed by amino alcohol ligated ruthenium complexes.** *Journal of the American Chemical Society*  
Brownell, K. R., McCrory, C. C., Chidsey, C. E., Perry, R. H., Zare, R. N., Waymouth, R. M.  
2013; 135 (38): 14299-14305
- **Chemoselective Pd-catalyzed oxidation of polyols: synthetic scope and mechanistic studies.** *Journal of the American Chemical Society*  
Chung, K., Banik, S. M., De Crisci, A. G., Pearson, D. M., Blake, T. R., Olsson, J. V., Ingram, A. J., Zare, R. N., Waymouth, R. M.  
2013; 135 (20): 7593-7602
- **Octahedral Group IV Bis(phenolate) Catalysts for 1-Hexene Homopolymerization and Ethylene/1-Hexene Copolymerization** *MACROMOLECULES*  
Kiesewetter, E. T., Waymouth, R. M.  
2013; 46 (7): 2569-2575
- **Chemoselective Oxidation of Polyols with Chiral Palladium Catalysts** *ORGANOMETALLICS*  
De Crisci, A. G., Chung, K., Oliver, A. G., Solis-Ibarra, D., Waymouth, R. M.  
2013; 32 (7): 2257-2266
- **Polymerizing Base Sensitive Cyclic Carbonates Using Acid Catalysis** *ACS MACRO LETTERS*  
Coady, D. J., Horn, H. W., Jones, G. O., Sardon, H., Engler, A. C., Waymouth, R. M., Rice, J. E., Yang, Y. Y., Hedrick, J. L.  
2013; 2 (4): 306-312
- **Semicrystalline Dihydroxyacetone Copolymers Derived from Glycerol** *MACROMOLECULES*  
Simon, J., Olsson, J. V., Kim, H., Tenney, I. F., Waymouth, R. M.  
2012; 45 (23): 9275-9281
- **Amidine-Mediated Zwitterionic Polymerization of Lactide** *ACS MACRO LETTERS*  
Brown, H. A., De Crisci, A. G., Hedrick, J. L., Waymouth, R. M.  
2012; 1 (9): 1113-1115
- **Designed guanidinium-rich amphipathic oligocarbonate molecular transporters complex, deliver and release siRNA in cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Geihe, E. I., Cooley, C. B., Simon, J. R., Kiesewetter, M. K., Edward, J. A., Hickerson, R. P., Kaspar, R. L., Hedrick, J. L., Waymouth, R. M., Wender, P. A.  
2012; 109 (33): 13171-13176
- **Organocatalytic Synthesis of Quinine-Functionalized Poly(carbonate)s** *BIOMACROMOLECULES*  
Edward, J. A., Kiesewetter, M. K., Kim, H., Flanagan, J. C., Hedrick, J. L., Waymouth, R. M.  
2012; 13 (8): 2483-2489
- **Facile Synthesis of Functionalized Lactones and Organocatalytic Ring-Opening Polymerization** *ACS MACRO LETTERS*  
Kim, H., Olsson, J. V., Hedrick, J. L., Waymouth, R. M.  
2012; 1 (7): 845-847
- **Stereoselective and Regioselective Propylene Polymerization with Group 4 Bisphenolate Ether Complexes** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*  
Randall, S., Kiesewetter, E. T., Waymouth, R. M.  
2012; 50 (13): 2604-2611
- **Transient Ru-methyl formate intermediates generated with bifunctional transfer hydrogenation catalysts** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Perry, R. H., Brownell, K. R., Chingin, K., Cahill, T. J., Waymouth, R. M., Zare, R. N.  
2012; 109 (7): 2246-2250
- **Stereocomplexation in Cyclic and Linear Polylactide Blends** *MACROMOLECULES*  
Shin, E. J., Jones, A. E., Waymouth, R. M.  
2012; 45 (1): 595-598
- **Palladium-Catalyzed Carbonylation of Diols to Cyclic Carbonates** *ADVANCED SYNTHESIS & CATALYSIS*  
Pearson, D. M., Conley, N. R., Waymouth, R. M.  
2011; 353 (16): 3007-3013
- **Polycondensation of Butenediol: Synthesis of Telechelic 2-Butene-1,4-diol Oligomers** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

- Kiesewetter, M. K., Edward, J. A., Kim, H., Waymouth, R. M.  
2011; 133 (41): 16390-16393
- **Synthesis and Structural Diversity of Mono-, Di- and Trinuclear Complexes with N,N'-Bis[(2-diphenylphosphanyl)phenyl]formamidine** *EUROPEAN JOURNAL OF INORGANIC CHEMISTRY*  
Son, K., Pearson, D. M., Jeon, S., Waymouth, R. M.  
2011: 4256-4261
  - **Thermoresponsive nanostructured polycarbonate block copolymers as biodegradable therapeutic delivery carriers** *BIOMATERIALS*  
Kim, S. H., Tan, J. P., Fukushima, K., Nederberg, F., Yang, Y. Y., Waymouth, R. M., Hedrick, J. L.  
2011; 32 (23): 5505-5514
  - **Crystallization of Cyclic Polymers: Synthesis and Crystallization Behavior of High Molecular Weight Cyclic Poly(epsilon-caprolactone)s** *MACROMOLECULES*  
Shin, E. J., Jeong, W., Brown, H. A., Koo, B. J., Hedrick, J. L., Waymouth, R. M.  
2011; 44 (8): 2773-2779
  - **Oxidatively Resistant Ligands for Palladium-Catalyzed Aerobic Alcohol Oxidation** *ORGANOMETALLICS*  
Pearson, D. M., Conley, N. R., Waymouth, R. M.  
2011; 30 (6): 1445-1453
  - **Stereospecific polymerization and selective oligomerization with coordination catalysts** *241st National Meeting and Exposition of the American-Chemical-Society (ACS)*  
Waymouth, R. M., Kiesewetter, E. T., Son, K.  
AMER CHEMICAL SOC.2011
  - **Organocatalytic Depolymerization of Poly(ethylene terephthalate)** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*  
Fukushima, K., Coulembier, O., Lecuyer, J. M., Almegren, H. A., Alabdulrahman, A. M., Alsewailem, F. D., Mcneil, M. A., Dubois, P., Waymouth, R. M., Horn, H. W., Rice, J. E., Hedrick, J. L.  
2011; 49 (5): 1273-1281
  - **Zwitterionic Copolymerization: Synthesis of Cyclic Gradient Copolymers** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Shin, E. J., Brown, H. A., Gonzalez, S., Jeong, W., Hedrick, J. L., Waymouth, R. M.  
2011; 50 (28): 6388-6391
  - **Kinetics of an Air- and Water-Stable Ruthenium(IV) Catalyst for the Deprotection of Allyl Alcohol in Water** *ORGANOMETALLICS*  
Kiesewetter, M. K., Waymouth, R. M.  
2010; 29 (22): 6051-6056
  - **Chemoselectivity Diversity in the Reaction of LiNC6F5SiMe3 with Nitriles and the Synthesis, Structure, and Reactivity of Zirconium Mono- and Tris[2-(2-pyridyl)tetrafluorobenzimidazolates] Complexes** *INORGANIC CHEMISTRY*  
Aharonovich, S., Botoshansky, M., Waymouth, R. M., Eisen, M. S.  
2010; 49 (20): 9217-9229
  - **Selective Ethylene Oligomerization in the Presence of ZnR2: Synthesis of Terminally-Functionalized Ethylene Oligomers** *ORGANOMETALLICS*  
Son, K., Waymouth, R. M.  
2010; 29 (16): 3515-3520
  - **The Depolymerization of Poly(ethylene terephthalate) (PET) Using N-Heterocyclic Carbenes from Ionic Liquids** *JOURNAL OF CHEMICAL EDUCATION*  
Kamber, N. E., Tsujii, Y., Keets, K., Waymouth, R. M., Pratt, R. C., Nyce, G. W., Hedrick, J. L.  
2010; 87 (5): 519-521
  - **Stereospecific Octahedral Group 4 Bis(phenolate) Ether Complexes for Olefin Polymerization** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Kiesewetter, E. T., Randall, S., Radlauer, M., Waymouth, R. M.  
2010; 132 (16): 5566-?
  - **Stereospecific Styrene Polymerization and Ethylene-Styrene Copolymerization with Titanocenes Containing a Pendant Amine Donor** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*  
Son, K., Waymouth, R. M.  
2010; 48 (7): 1579-1585

- **Organocatalysis: Opportunities and Challenges for Polymer Synthesis** *MACROMOLECULES*  
Kiesewetter, M. K., Shin, E. J., Hedrick, J. L., Waymouth, R. M.  
2010; 43 (5): 2093-2107
- **Acyclic Guanidines as Organic Catalysts for Living Polymerization of Lactide** *MACROMOLECULES*  
Zhang, L., Pratt, R. C., Nederberg, F., Horn, H. W., Rice, J. E., Waymouth, R. M., Wade, C. G., Hedrick, J. L.  
2010; 43 (3): 1660-1664
- **Lithium Furyl and Pyridyl Amidinates as Building Blocks in Coordination Polymers, Ladder and Cage Structures** *INORGANIC CHEMISTRY*  
Aharonovich, S., Botoshanski, M., Rabinovich, Z., Waymouth, R. M., Eisen, M. S.  
2010; 49 (3): 1220-1229
- **Mono- and bis-amidinate 2,6-xylylimido vanadium chlorides: synthesis, structure, and reactivity** *DALTON TRANSACTIONS*  
Aharonovich, S., Botoshanski, M., Tumanskii, B., Nomura, K., Waymouth, R. M., Eisen, M. S.  
2010; 39 (24): 5643-5649
- **Selective Catalytic Oxidation of Glycerol to Dihydroxyacetone** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Painter, R. M., Pearson, D. M., Waymouth, R. M.  
2010; 49 (49): 9456-9459
- **Cyclic Guanidine Organic Catalysts: What Is Magic About Triazabicyclodecene?** *JOURNAL OF ORGANIC CHEMISTRY*  
Kiesewetter, M. K., Scholten, M. D., Kirn, N., Weber, R. L., Hedrick, J. L., Waymouth, R. M.  
2009; 74 (24): 9490-9496
- **Oligocarbonate Molecular Transporters: Oligomerization-Based Syntheses and Cell-Penetrating Studies** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Cooley, C. B., Trantow, B. M., Nederberg, F., Kiesewetter, M. K., Hedrick, J. L., Waymouth, R. M., Wender, P. A.  
2009; 131 (45): 16401-?
- **Mechanistic Studies of the Oxidative Dehydrogenation of Methanol Using a Cationic Palladium Complex** *ORGANOMETALLICS*  
Pearson, D. M., Waymouth, R. M.  
2009; 28 (13): 3896-3900
- **Hierarchical Supermolecular Structures for Sustained Drug Release** *SMALL*  
Tan, J. P., Kim, S. H., Nederberg, F., Appel, E. A., Waymouth, R. M., Zhang, Y., Hedrick, J. L., Yang, Y. Y.  
2009; 5 (13): 1504-1507
- **Simple Approach to Stabilized Micelles Employing Miktoarm Terpolymers and Stereocomplexes with Application in Paclitaxel Delivery** *BIOMACROMOLECULES*  
Nederberg, F., Appel, E., Tan, J. P., Kim, S. H., Fukushima, K., Sly, J., Miller, R. D., Waymouth, R. M., Yang, Y. Y., Hedrick, J. L.  
2009; 10 (6): 1460-1468
- **Zwitterionic Polymerization: A Kinetic Strategy for the Controlled Synthesis of Cyclic Poly(lactide)** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Jeong, W., Shin, E. J., Culkun, D. A., Hedrick, J. L., Waymouth, R. M.  
2009; 131 (13): 4884-4891
- **N-Heterocyclic Carbenes for the Organocatalytic Ring-Opening Polymerization of epsilon-Caprolactone** *MACROMOLECULES*  
Kamber, N. E., Jeong, W., Gonzalez, S., Hedrick, J. L., Waymouth, R. M.  
2009; 42 (5): 1634-1639
- **Mixed Micelle Formation through Stereocomplexation between Enantiomeric Poly(lactide) Block Copolymers** *MACROMOLECULES*  
Kim, S. H., Tan, J. P., Nederberg, F., Fukushima, K., Yang, Y. Y., Waymouth, R. M., Hedrick, J. L.  
2009; 42 (1): 25-29
- **Copolymerization of Styrene and Ethylene at High Temperature with Titanocenes Containing a Pendant Amine Donor** *MACROMOLECULES*  
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## PRESENTATIONS

- IBM Smarter Planet Blog: Meet Robert Waymouth - IBM (December 12, 2012)
- GCEP Symposium, Synthetic Fuels Technical Talk: Molecular Designs for Electrocatalysis - Stanford Percourt Institute for Energy (October 14, 2014)