

Robert M. Waymouth

Department of Chemistry, Stanford University, Stanford, CA 94305

Ph: (650) 723-4515

Email: waymouth@stanford.edu website: <http://waymouthlab.stanford.edu>

Personal Data

Birth: May 20, 1960, Warner Robins, Ga.

Education

- 1987 Ph.D., Chemistry, California Institute of Technology, Pasadena, CA
Research Advisor: Professor R.H. Grubbs
- 1982 B.A., Chemistry, Summa Cum Laude, Washington and Lee University, Lexington, VA
B.S., Mathematics, Summa Cum Laude, Washington and Lee University, Lexington, VA
Research Advisor: Professor J.K. Shillington

Professional

- 2014 Professor, by Courtesy, Chemical Engineering, Stanford University, Stanford CA
- 2000- Robert Eckles Swain Professor of Chemistry, Stanford, CA
- 1997- Professor, Stanford University, Stanford, CA
- 1994-97 Associate Professor, Stanford University, Stanford, CA
- 1988-94 Assistant Professor, Stanford University, Stanford, CA
- 1987 Postdoctoral Research Fellow, Institut fur Polymere, ETH Zurich, Switzerland
Research Advisor: Professor Piero Pino

Fellowships and Awards

- 2015 Butler Lectureship, University of Florida
- 2012 Presidential Green Chemistry Challenge Award, with James L. Hedrick of IBM (EPA)
- 2009 Cooperative Research Award in Polymer Science and Engineering
with James L. Hedrick of IBM (ACS PMSE Division)
- 2005 Bass University Fellow in Undergraduate Education, Stanford
- 2001 Alexander von Humboldt Senior Scientist Award
- 1997 Wilhelm Manchot Professorship, Technical University of Munich
- 1997 Walter J. Gores Award for Excellence in Teaching, Stanford
- 1996 Alan T. Waterman Award, National Science Foundation
- 1995 Fresenius Award, Phi Lambda Upsilon, Honorary Chemical Society
- 1995 Arthur C. Cope Scholar Award, American Chemical Society
- 1994 Bing Fellowship, Undergraduate Teaching Award, Stanford
- 1993 Phi Beta Kappa Undergraduate Teaching Award, Stanford
- 1993 Alfred P. Sloan Fellowship, A. P. Sloan Foundation
- 1993 Union Carbide Innovation Recognition Awardee, Union Carbide
- 1992 National Science Foundation Young Investigator Award, NSF
- 1989 Exxon Educational Foundation, Research and Training Award, Stanford
- 1986 SOHIO Fellowship in Catalysis, California Institute of Technology
- 1985 W.R. Grace Fellowship, California Institute of Technology
- 1982 James L. Howe Chemistry Award, Blue Ridge ACS Section
- 1980 Taylor Scholarship in Mathematics, Phi Beta Kappa

Professional Activities

Science Advisory Board: KAUST Catalysis Center; Science Advisory Board: Washington and Lee University, International Advisory Board, International Symposium on Homogeneous Catalysis, Editorial Board: Journal of Polymer Science, Chemistry; Co-Chair: Stanford Task Force on Advancing the Culture of Laboratory Safety

Publications

1. Waymouth, R.M.; Santarsiero, B.D.; Grubbs, R.H. "Trigonal Bipyramidal Methyl Group Between Two Zirconocene Ketene Centers" *J. Am. Chem. Soc.* **1984**, *106*, 4050-4051.
2. Waymouth, R.M.; Santarsiero, B.D.; Coats, R.J.; Brownikowski, M.J.; Grubbs, R.H. "Trinuclear Zr₂Al μ -Ketene Complexes Containing Bridging Ligands. Implications for Transmetalation Reactions and CO Reduction Chemistry" *J. Am. Chem. Soc.* **1986**, *108*, 1427-1441.
3. Waymouth, R.M.; Clauser, K.R.; Grubbs, R.H. "Reactivity of Group 4 Acyl Complexes: Synthesis of Zirconium Ketone Complexes" *J. Am. Chem. Soc.* **1986**, *108*, 6385-6387.
4. Waymouth, R.M., Bangerter, F.; Pino, P. "Stereochemistry of PtO₂-Catalyzed Hydrogenation of [Ethylene-bis(indenyl)] zirconocene Dichlorides" *Inorg. Chem.* **1988**, *27*, 758.
5. Waymouth, R.M., Grubbs, R.H. "Facile Intramolecular Coupling of Alkyl and Acyl Ligands Induced by Lewis Acids: Mechanistic Studies on the Formation of Zirconium Ketone Complexes" *Organometallics* **1988**, *7*, 1631-1635.
6. Consiglio, G.; Waymouth, R. "Enantioselective Homogeneous Catalysis Involving Transition Metal Allyl Intermediates" *Chem. Rev.* **1989**, *89*, 257.
7. Waymouth, R.M.; Potter, K.S.; Schaefer, W.P.; Grubbs, R.H. "Structure of a Trinuclear Zr₂Al μ -Ketone Complex with a Bridging Trigonal Bipyramidal Methyl Group", *Organometallics*, **1990**, *9*, 2843.
8. Waymouth, R.M.; Pino, P. "Enantioselective Hydrogenation of Olefins with Homogeneous Ziegler-Natta Catalytic Systems", *J. Am. Chem. Soc.*, **1990**, *112*, 4911.
9. Resconi, L.; Waymouth, R.M. "Diastereoselectivity in the Cyclopolymerization of 1,5-Hexadiene." *J. Am. Chem. Soc.*, **1990**, *112*, 4953.
10. Resconi, L.; Coates, G.; Mogstad, A.; Waymouth, R.M. "Stereospecific Cyclopolymerization with Group 4 Metallocenes" *J. Macromol. Sci., Chem.* **1991**, *A28*, 1225-1234.
11. Knight, K.; Waymouth, R.M. "Zirconium Catalyzed Diene and Alkyl-Alkene Coupling Reactions with Magnesium Reagents" *J. Am. Chem. Soc.* **1991**, *113*, 6268-6270.
12. Coates, G.W.; Waymouth, R.M. "Enantioselective Cyclopolymerization of 1,5-Hexadiene: Optically Active Poly(methylene-1,3-cyclopentane)" *J. Am. Chem. Soc.* **1991**, *113*, 6270-6272.
13. Kesti, M.J.; Waymouth, R.M. "Olefin Hydrosilation Catalyzed by Zirconocene Complexes" *J. Organomet. Chem.*, **1991**, *417*, C12-C15.
14. Banovetz, J.P.; Stein, K. M.; Waymouth, R.M. "Stereoselectivity in the Catalytic Oligomerization of Phenylsilane" *Organometallics*, **1991**, *10*, 3430-3432.
15. Kesti, M. R.; Waymouth, R.M. "Group 4 Metallocene Olefin Hydrosilation Catalysts" *Organometallics*, **1992**, *11*, 1095-1103.
16. Mogstad, A.; Waymouth, R.M. "Chain Transfer to Aluminum in the Homogeneous Cyclopolymerization of 1,5-Hexadiene" *Macromolecules*, **1992**, *25*, 2282-2284.
17. Kesti, M.R.; Waymouth, R.M. "Highly Chemo- and Stereoselective Cyclopolymerization of 2-Methyl-1,5-Hexadiene: Chain Transfer via β -CH₃ elimination", *J. Am. Chem. Soc.*, **1992**, *114*, 3565-3566.
18. Kesti, M. R.; Coates, G.W.; Waymouth, R.M. "Homogeneous Ziegler-Natta Polymerization of Functionalized Monomers Catalyzed by Cationic Group IV Metallocenes" *J. Am. Chem. Soc.*, **1992**, *114*, 9679-9680.
19. Coates, G. W.; Waymouth, R.M. "Chiral Polymers via Cyclopolymerization" *J. Mol. Catal.*, **1992**, *76*, 189-194.
20. Wischmeyer, U.; Knight, K.S.; Waymouth, R.M. "Stereoselective Cyclomagnesiation of 1,6-Heptadienes Catalyzed by Zirconocenes: Effects of Substituents, Solvent and Magnesium Reagent" *Tetrahedron Letters*, **1992**, *33*, 7735-7738.

21. Coates, G.W.; Waymouth, R. M. "Enantioselective Cyclopolymerization of 1,5-Hexadiene Catalyzed by Chiral Zirconocenes: A Novel Strategy for the Synthesis of Optically Active Polymers with Chirality in the Main Chain." *J. Am. Chem. Soc.*, **1993**, *115*, 91-98.
22. Cavallo, L.; Guerra, G.; Corradini, P.; Resconi, L.; Waymouth, R.M. "Model Catalytic Sites for Olefin Polymerization and Diastereoselectivity in the Cyclopolymerization of 1,5-Hexadiene" *Macromolecules*, **1993**, *26*, 260-267.
23. Bovino, S.C.; Coates, G.W.; Banovetz, J.P.; Waymouth, R.M.; Straus, D.A.; Ziller, J.W. "Crystal Structures of $(\eta^5\text{-C}_5\text{Me}_5)(\eta^5\text{-2,4-C}_7\text{H}_{11})\text{Cr}$ and $(\eta^5\text{-C}_5\text{Me}_5)(\eta^5\text{-2,4-C}_7\text{H}_{11})\text{CrCO}$. An example of "S" 2,4-Dimethylpentadienyl Ligand Geometry." *Inorg. Chim. Acta*, **1993**, *203*, 179-183.
24. Banovetz, J. P.; Hsaio, Y.L.; Waymouth, R. M. "Selective Free Radical Halogenation of Polyphenylsilane" *J. Am. Chem. Soc.*, **1993**, *115*, 2540-2541.
25. Suzuki, H.; Banovetz, J. P.; Waymouth, R.M. "Dehydrogenative Coupling of Substituted Phenylsilanes: Synthesis of Poly(trifluoromethylphenyl)silanes" *Organometallics*, **1993**, *12*, 4700-4703.
26. Knight, K. S.; Wang, D.; Waymouth, R. M. "Stereochemistry and Mechanism of Zirconocene Catalyzed Cyclomagnesiation of Diolefins" *J. Am. Chem. Soc.*, **1994**, *116*, 1845-1854.
27. Mogstad, A.; Waymouth, R.M. "Synthesis of Diblock Polyolefin and Polyester Copolymers Using Zirconium and Aluminum Catalysts" *Macromolecules* **1994**, *27*, 2313-2315.
28. Knight, K.S.; Waymouth, R.M. "Stereoselective Cyclization via Zirconocene-Catalyzed Intramolecular Olefin Allylation" *Organometallics*, **1994**, *13*, 2575-2577.
29. Hsiao, Y.-L.; Waymouth, R.M. "Free-Radical Hydrosilylation of Poly(phenylsilane): Synthesis of Functionalized Polysilanes", *J. Am. Chem. Soc.*, **1994**, *116*, 9779-9780.
30. Hsiao, Y-L.; Banovetz, J.P.; Waymouth, R.M. "Substituent Effects on the Electronic Properties of σ -Conjugated Polysilanes" in *Inorganic and Organometallic Polymers II*, Wisian-Neilson, P.; Allcock, H.R.; Wynne, K.J.; Eds.; ACS Symposium Series 572; American Chemical Society; Washington DC, **1994**, Chapter 6.
31. Coates, G.W.; Waymouth, R.M. "Oscillating Stereocontrol in the Polymerization of Propylene: A New Strategy for the Synthesis of Thermoplastic Elastomeric Polypropylene" *Science*, **1995**, *267*, 217-218.
32. Ruiz de Ballesteros, O.; Venditto, V. Auriemma, Guerra, G.; Resconi, L.; Waymouth, R. M.; Mogstad, A-L. "Thermal and Structural Characterization of Poly(methylene-1,3-cyclopentane) Samples of Different Microstructures" , *Macromolecules* **1995**, *28*, 2383-2388.
33. Knight, K. S.; Waymouth, R. M. "Constructing Cyclics from Simple Olefins" *CHEMTECH*, **1995**, *25(4)* 15-21.
34. Shaughnessy, K. H.; Waymouth, R.M. "Carbometallation of α,ω -Dienes and Olefins Catalyzed by Zirconocenes" *J. Am. Chem. Soc.*, **1995**, *117*, 5873-5874.
35. Coates, G.W.; Waymouth, R.M. "Homogeneous Ziegler-Natta Catalysis" in *Comprehensive Organometallic Chemistry II*, Abel, E. W.; Stone, F. G. A.; Wilkinson, G.; Eds., vol. 12, Pergamon, New York: **1995**, Chapter 12.1, p. 1193-1208.
36. Miller, S. A.; Waymouth, R. M. "Stereo- and Enantioselective Polymerization of Olefins with Homogeneous Ziegler-Natta Catalysts" in *Ziegler Catalysis*, Fink, G.; Mulhaupt, R.; Brintzinger, H.H. Eds. Springer-Verlag, Berlin **1995**, p. 441-454.
37. Brintzinger, H.H.; Fischer, D.; Mulhaupt, R.; Rieger, B.; Waymouth, R.M.; "Metallocene Catalysts for Stereoregular Polymerization" *Angew. Chem., Int. Ed. Eng*, **1995**, *34*, 1143-1170.
38. Hauptman, E.; Waymouth, R. M.; Ziller, J. "Stereoblock Polypropylene: Ligand Effects on the Stereospecificity of 2-Arylindene Zirconocene Catalysts", *J. Am. Chem. Soc.* **1995**, *117*, 11586-11587.
39. Beach, James V.; Loy, Douglas A.; Hsiao, Y-L.; Waymouth, R.M. "Environmentally Friendly Polysilane Photoresists" in *Microelectronics Technology*, Reichmanis, E.; Ober, C.; MacDonald,

- S.A.; Iwayanagi, T.; Nishikubo, T; Eds.; ACS Symposium Series 614; American Chemical Society; Washington DC, **1995**, Chapter 23, p. 355-366.
40. Ciardelli, F.; Aglietto, M.; Pieroni, O.; Ruggeri, G.; Waymouth, R. M.; Kesti, M.; Stein, K. "Synthetic Approaches to Functional Polymers" in "Organic Synthesis: Gnosis to Prognosis", Kluwer, The Netherlands, **1996**, p 525-548.
 41. Waymouth, R. M.; Coates, G.W.; Ciardelli, F.; Carlini, C.; Altomare, A. "Polymer Synthesis and Stereochemistry with Transition Metal Catalysts" in "Organic Synthesis: Gnosis to Prognosis", Kluwer, The Netherlands, **1996**, p 453-473.
 42. Borkowsky, S.; Waymouth, R.M. "The Pd²⁺ Catalyzed Cyclocopolymerization of 1,5-Hexadiene and CO: Regioselectivity of Olefin Insertion", *Macromolecules*, **1996**, *29*, 6377-6382..
 43. Sernetz, F. G.; Mulhaupt, R.; Waymouth, R. M. "Influence of polymerization conditions on the copolymerization of styrene with ethylene using Me₂Si(Me₄Cp)(N-tert-butyl)TiCl₂/methylalumoxane Ziegler-Natta catalysts" *Macromol. Chem. Phys.* **1996**, *197*, 1071-1083.
 44. Shaughnessy, K. H., Waymouth, R. M. "A Regioselective Cyclo-carboxylation of Non-conjugated Dienes to Cyclic Ketoesters" *Organometallics*, **1997**, *16*, 1001-1007.
 45. Millward, D.B.; Waymouth, R. M. "Zirconocene-Mediated Cyclization of 2-Bromo- α,ω -Dienes" *Organometallics*, **1997**, *16*, 1153-1158.
 46. McKnight, A.L.; Masood, A.; Waymouth, R.M.; Straus, D.A. "Selectivity in Propylene Polymerization with Group 4 Cp-amido Catalysts", *Organometallics* **1997**, *16*, 2879-2885.
 47. Tagge, C. D.; Waymouth, R. M. "Dynamic Stereocontrol: Synthesis of Elastomeric Polypropylene" *Proc. Robert A. Welch Found. Conf. Chem. Res.*, **1996**, 33-43.
 48. Kravchenko, R.; Masood, A.; Waymouth, R. M. "Propylene Polymerization with Chiral and Achiral Unbridged 2-Arylindene Metallocenes" *Organometallics*, **1997**, *16*, 3635-3639.
 49. Bruce, M.D.; Coates, G.W.; Hauptman, E.; Waymouth, R. M. "The Effect of Metal on the Stereospecificity of 2-Arylindene Catalysts for Elastomeric Polypropylene", *J. Am. Chem. Soc.* **1997** *119*, 11174-11182.
 50. Bruce, M.D.; Waymouth, R. M. "Statistical Analysis and Simulation of Pentad Distributions of Stereoblock Polypropylenes", *Macromolecules* **1998**, *31*, 2707-2715.
 51. Stehling, U. M.; Stein, K. M.; Waymouth, R. M. "Metallocene/Borate Catalyzed Polymerization of Amino Functionalized α -Olefins" *Macromolecules*, **1998**, *31*, 2019-2027.
 52. Kravchenko, R.; Waymouth, R. M. "Ethylene-Propylene Copolymerization with 2-Arylindene Zirconocenes" *Macromolecules*, **1998**, *31*, 1-6.
 53. Carlson, E. D.; Terakawa, T.; Fuller, G. G.; Krejchi, M. T.; Shah, C.; Waymouth, R. M. "Rheological and Thermal Properties of Elastomeric Polypropylene" *Macromolecules*, **1998**, *31*, 5343-5351.
 54. Maciejewski Petoff, J. L.; Bruce, M. D.; Waymouth, R. M., Masood, M.; Lal, T. K.; Quan, R. W.; Behrend, S. J. "Propylene Polymerization with Unbridged Metallocenes: Ligand Effects on the Selectivity for Elastomeric Polypropylene" *Organometallics*, **1997** *16*, 5909-5916.
 55. Leclerc, M. K.; Waymouth, R. M. "Alternating Ethylene/Propylene Copolymerization with Me₂C(R,R'Cp)(Flu)ZrMe₂/MAO.", *Angew. Chem., Int. Ed. Eng.* **1998**, *37*(7) 922-925.
 56. Stehling, U. M.; Malmstrom, E. E.; Waymouth, R. M.; Hawker, C. J. "Synthesis of Poly(olefin) Graft Copolymers by a Combination of Metallocene and 'Living' Free Radical Polymerization" *Macromolecules*, **1998**, *31*, 4396-4398.
 57. Kravchenko, R. L.; Masood, M.; Waymouth, R. M.; Myers, C. L. "Strategies for Synthesis of Elastomeric Polypropylene : Fluxional Metallocenes with C₁-Symmetry", *J. Am. Chem. Soc.*, **1998**, *120*, 2039-2046.

58. Lin, S. Hauptman, E.; Lal, T. K.; Waymouth, R.M., Quan, R. W.; Ernst, A.B. "Steric and Electronic Effects of R in (2-(4-R-C₆H₄)indenyl)₂ZrCl₂ Catalysts on the Synthesis of Elastomeric Polypropylene" *J. Mol. Catal. A.*, **1998**, *136*, 23-33.
59. McKnight, A. L.; Waymouth, R. M. "Group 4 Ansa-Cyclopentadienyl-Amido Catalysts for Olefin Polymerization", *Chem. Rev.*, **1998**, *98*, 2587-2598.
60. Hu, Y.; Krejchi, M. T.; Shah, C. D. Waymouth, R. M.; Myers, C. L. "Elastomeric Polypropylenes from Unbridged 2-Phenylindene Zirconocene Catalysts: Thermal Characterizations and Mechanical Properties" *Macromolecules*, **1998**, *31*, 6908-6916.
61. Stehling, U. M.; Stein, K. M.; Fischer, D.; Waymouth, R. M. "Metallocene / Borate Catalyzed Copolymerization of 5-N,N-Diisopropylamino-1-pentene with 1-Hexene and 4-Methyl-1-Pentene" *Macromolecules*, **1998**, *32*, 14-20.
62. Maciejewski Petoff, J. L.; Agoston, T.; Lal, T. K.; Waymouth, R.M. "Elastomeric Polypropylene from Unbridged 2-Arylindenyl Zirconocenes: Modelling Polymerization Behavior Using *ansa*-Metallocene Analogs" *J. Am. Chem. Soc.*, **1998** *120*, 11316-11322.
63. Shaughnessy, K. H.; Waymouth, R. M. "Enantio- and Diastereoselective Catalytic Carboalumination of 1-Alkenes and α,ω -Dienes with Cationic Zirconocenes: Scope and Mechanism." *Organometallics*, **1998**, *17*, 5728-5745.
64. Hu, Y. Carlson, E. D.; Fuller, G. G.; Waymouth, R. M. "Elastomeric Polypropylenes from Unbridged 2-Arylindene Catalysts: Temperature Dependence of Crystallinity and Relaxation Properties" *Macromolecules*, **1999** *32*, 3334-3340.
65. Carlson, E. D.; Fuller, G. G.; Waymouth, R. M. "The Transient Birefringence of Elastomeric Polypropylene Subjected to Step Shear" *Macromolecules*, **1999**, *32*, 8094-8099.
66. Carlson, E. D.; Fuller, G. G.; Waymouth, R. M. "Component Relaxation Processes within Elastomeric Polypropylene" *Macromolecules*, **1999**, *32*, 8100-8106.
67. McKnight, A. L.; Waymouth, R. M. "Ethylene / Norbornene Copolymerizations with Titanium CpA Catalysts" *Macromolecules*, **1999**, *32*, 2816-2825.
68. Tagge, C. D.; Kravchenko, R. L.; Lal, T. K.; Waymouth, R. M. "Mixed Ligand Metallocenes as Catalysts for Elastomeric Polypropylene" *Organometallics*, **1999** *18*, 380-388.
69. Witte, P.; Lal, T. K.; Waymouth, R.M. "Synthesis of Unbridged bis(2-R-Indenyl) Zirconocenes Containing Functional Groups and Investigations in Propylene Polymerization" *Organometallics*, **1999**, *18*, 4147-4155.
70. Maciejewski Petoff, J. L.; Myers, C. L.; Waymouth, R. M. "Influence of Trialkylaluminum Reagents on the Propylene Polymerization Behavior of Bridged and Unbridged 2-Arylindene Metallocene Polymerization Catalysts" *Macromolecules*, **1999**, *32*, 7984-7989.
71. Lin, S.; Waymouth, R.M. "Regioirregular Propylene Insertion in Polypropylenes Synthesized with Unbridged Bis(2-Aryl)Indenyl Zirconium Dichloride Catalysts: Implications on Activity." *Macromolecules*, **1999**, *32*, 8383-8290.
72. Lin, S.; Kravchenko, R.; Waymouth, R. M. "Ethylene and Hydrogen Effects in Propylene Polymerization with 2-Arylindenyl Zirconocenes" *J. Mol. Catal. A., Chem.* **2000** *158*, 423-427.
73. Millward, D.; Cole, A.; Waymouth, R.M. "Catalytic Carbometallation of Olefins with CyclopentadienylamidoTitanium Complexes" *Organometallics*, **2000**, *19*, 1870-1878.
74. Millward, D.; Sammis, G.; Waymouth, R. M. "Ring-Opening Reactions of Oxabicyclic Alkene Compounds: Enantioselective Hydride and Ethyl Additions Catalyzed by Group 4 Metals." *J. Org. Chem.*, **2000**, *65*, 3902-3909.
75. Leino, R.; Gomez, F. J.; Cole, A. P.; Waymouth, R. M. "Stereocontrol in Syndiospecific Polymerizations with C₁ Symmetric Group 4 *ansa*-Metallocene Catalysts" *Macromolecules*, **2001** *34*, 2072-2082.

76. Nele, M.; Collins, S.; Dias, M.L.; Pinto, J.C.; Lin, S.; Waymouth, R. M. "Two-State Models for Olefin Polymerization using Metallocene Catalysts I: Application to Oscillating Metallocene Catalyst Systems" *Macromolecules*, **2000**, *33*, 7249-7260.
77. Beniot, D.; Harth, E.; Fox, P.; Waymouth, R. M.; Hawker, C. J. "Accurate Structural Control and Block Formation in the Living Polymerization of 1,3-butadiene by Nitroxide-Mediated Procedures" *Macromolecules* **2000**, *33*, 363-370.
78. Lin, S.; Waymouth, R.M.; Nele, M.; Collins, S.; Pinto, J.C. "Kinetics of Propylene Polymerization Using (2-Phenylindenyl)₂ZrCl₂ / MAO *J. Am. Chem.Soc.*, **2000**, *122*, 11275-11285.
79. Kamigaito, M.; Lal, T. K., Waymouth, R. M. "Olefin Polymerization with Me₄Cp-Amido Complexes with Electron-Withdrawing Groups" *J. Polym. Sci.-Part A: Polym. Chem.*, **2000**, *38*, 4649-4660.
80. Harth, E.; Hawker, C. J.; Fan, W.; Waymouth, R. M. "Chain-end Functionalization in Nitroxide Mediated 'Living' Free Radical Polymerizations" *Macromolecules*, **2001**, *34*, 3856-3862.
81. Fan, W.-H.; LeClerc, M. K.; Waymouth, R. M. "Alternating Stereospecific Copolymerization of Ethylene and Propylene with Metallocene Catalysts" *J. Am. Chem. Soc.*, **2001**, *123*, 9555-9563.
82. Schoenherr, H.; Wiyatno, W.; Pople, J.; Frank, C.W.; Fuller, G. G.; Gast, A. P.; Waymouth, R. M. "Morphology of Thermoplastic Elastomers: Stereoblock Polypropylene" *Macromolecules*, **2002**, *35*, 2654-2666.
83. Fan, W.; Waymouth, R. M. "Alternating Copolymerization of Ethylene and Propylene: Evidence for Selective Chain-Transfer to Ethylene" *Macromolecules*, **2001**, *34*, 8619-8625.
84. Mahanthappa, M.; Waymouth, R. M. "Titanium-Mediated Syndiospecific Styrene Polymerizations: Role of Oxidation State" *J. Am. Chem. Soc.*, **2001**, *123*, 12093-12094.
85. Dankova, M.; Kravchenko, R. L.; Cole, A. P.; Waymouth, R. M. "Models for Conformationally Dynamic Metallocenes. The Copolymerization Behavior of the Unbridged Metallocene (1-methyl-2-phenylindenyl)(2-phenylindenyl) Zirconium Dichloride" *Macromolecules*, **2002** *35*, 2882 - 2891.
86. Reybuck, S. E.; Meyer, A.; Waymouth, R. M. "The Copolymerization Behavior of Unbridged Indenyl Metallocenes: Substituent Effects on the Degree of Comonomer Incorporation" *Macromolecules*, **2002**, *35*, 637-643.
87. Lin, S.; Waymouth, R. M. "2-Arylindene Metallocenes: Conformationally Dynamic Catalysts to Control the Structure and Properties of Polypropylene" *Acc. Chem. Res.*, **2002**, *35*(9), 765-773.
88. Gomez, F. J.; Waymouth, R. M. "Syndiospecific Propylene Polymerization Using C₁-Symmetric *ansa*-Metallocene Catalysts: Substituent and Bridge Effects." *Macromolecules*, **2002**, *35*, 3358-3368.
89. Mahanthappa, M. K.; Huang, K.-W.; Cole, A. P.; Waymouth, R. M. "Synthesis and Molecular Structure of Titanium Complexes containing a Reduced TEMPO Radical" *Chem. Comm.*, **2002**, 502-503.
90. Wilmes, G. M.; Polse, J. L.; Waymouth, R. M. "Influence of Cocatalyst on the Stereoselectivity of Unbridged 2-Phenylindenyl Metallocene Catalysts" *Macromolecules*, **2002**, *35*, 6766-6772.
91. Choo, T. N.; Waymouth, R. M. "Cyclocopolymerization: A Mechanistic Probe for Dual-Site Alternating Copolymerization of Ethylene and α -Olefins" *J. Am. Chem. Soc.*, **2002**, *124*, 4188-4189.
92. Fan, W.; Waymouth, R. M. "The Sequence and Stereoselectivity of the C₁-symmetric metallocene Me₂Si(1-(4,7-Me₂Ind))(9-Flu)ZrCl₂" *Macromolecules*, **2003**, *36*, 3010-3014.
93. Wilmes, G. M.; Lin, S.; Waymouth, R. M. "Propylene Polymerization with Sterically-Hindered Unbridged 2-Arylindene Metallocenes" *Macromolecules*, **2002**, *35*, 5382-5387.

94. Wiyatno, W.; Pople, J.; Gast, A.; Waymouth, R. M.; Fuller, G. G. "Dynamic Response of Stereoblock Elastomeric Polypropylene Studied by Rheo-Optics and X-ray Scattering: 1. Influence of Isotacticity" *Macromolecules*, **2002**, *37*, 8488-8497.
95. Wiyatno, W.; Pople, J.; Gast, A.; Waymouth, R. M.; Fuller, G. G. "Dynamic Response of Stereoblock Elastomeric Polypropylene Studied by Rheo-Optics and X-ray Scattering: 2. Orthogonally-oriented Crystalline Chains. *Macromolecules*, **2002**, *37*, 8498-8508.
96. Wiyatno, W.; Pople, J. A.; Chen, Z.R.; Myers, C. L.; Gast, A. P.; Waymouth, R.M.; Fuller, G. G. "Component Stress-Strain Behavior and Small-Angle Neutron Scattering Investigation of Stereoblock Elastomeric Polypropylene;" *Macromolecules*, **2003**, *36*, 1178-1187.
97. Bowden, N. B.; Dankova, M.; Wiyatno, W.; Hawker, C. J.; Waymouth, R. M. "Synthesis of Polyethylene Graft Block Copolymers from Styrene, Butyl Acrylate, and Butadiene" *Macromolecules*, **2002**, *35*, 9246-9248.
98. De Rosa, C.; Auriemma, F.; Circelli, T.; Waymouth, R. M. "Crystallization of the α and γ Forms of Isotactic Polypropylene as a Tool to Test the Degree of Segregation of Defects in the Polymer Chains" *Macromolecules*, **2002**, *35*, 3622-3629.
99. Huang, K-W.; Waymouth, R. M. "Coordination Chemistry of Stable Radicals: Homolysis of a Titanium-Oxygen Bond" *J. Am. Chem. Soc.* **2002**, *124*, 8200-8201.
100. Bowden, N. A.; Willets, K. A.; Moerner, W.E.; Waymouth, R. M. "Synthesis of Fluorescently Labeled Polymers and Their Use in Single-Molecule Imaging" *Macromolecules*, **2002**, *35*, 8122-8125.
101. Jones, T. D.; Chaffin, K. A.; Bates, F. S.; Annis, B. K.; Hagaman, E. W.; Kim, M.-H.; Wignall, G. D.; Fan, W.-H.; Waymouth, R. M. "Effect of Tacticity on Coil Dimensions and Thermodynamic Properties of Polypropylene" *Macromolecules*, **2002**, *35*, 5061-5068.
102. Schönherr, H.; Waymouth, R. M.; Frank, C. W. "Nucleation and Crystallization of Low-Crystallinity Polypropylene Followed in-situ by Hot Stage Atomic Force Microscopy" *Macromolecules*, **2003**, *36*, 2412-2418.
103. Dankova, M.; Waymouth, R. M. "High Comonomer Selectivity in Ethylene/Hexene Copolymerization by Unbridged Indenyl Metallocenes" *Macromolecules* **2003**, *36*, 3815-3820.
104. Gomez, F. J.; Chen, R. J.; Wang, D.; Waymouth, R. M.; Dai, H. "Non-covalent Sidewall Functionalization of Single-Walled Carbon Nanotubes: Ring Opening Metathesis Polymerization" *Chem. Commun.* **2003**, 190-191.
105. Straus, D. A.; Kamigaito, M.; Lal, T. K.; Waymouth, R. M. "Synthesis and Use of $[\text{TiF}_2(\text{NMe}_2)_2]_4$ and its use for olefin polymerization", *Inorg. Chim. Acta.*, **2003**, *349*, 65-68.
106. Hung, J.; Cole, A.P.; Waymouth, R. M. "Control of Sequence Distribution of Ethylene Copolymers: Influence of Comonomer Sequence on the Melting Behavior of Ethylene Copolymers" *Macromolecules*. **2003**, *36*, 2454-2463. doi: 10.1021/ma021779v
107. Nyce, G. W.; Lamboy, J. A.; Connor, E. F.; Waymouth, R. M.; Hedrick, J. L. "Expanding the Catalytic Activity of Nucleophilic N-Heterocyclic Carbenes for Transesterification Reactions" *Org. Lett.* **2002**, 3587-3590.
108. Nyce, G. W.; Glauser, T.; Connor, E. F.; Möck, A.; Waymouth, R. M.; Hedrick, J. L. "In-situ Generation of Carbenes: A General and Versatile Platform for Organocatalytic Living Polymerization" *J. Am. Chem. Soc.*, **2003**, *125*, 3046-3056.
109. Diehl, S. C.; Waymouth, R. M. "Polystyrene-Supported 2-Arylindenyl Zirconocene Catalysts for Propylene Polymerization" *Isr. J. Chem.*, **2003**, *42*, 393-401.
110. Choo, T.; Waymouth, R. M. "The Dual-Site Alternating Cyclocopolymerization of 1,3-Butadiene with Ethylene" *J. Am. Chem. Soc.*, **2003**, *125*(30) 8970-8971.

111. Lavoie, A.; Ho, M.; Waymouth R. M. "Alternating Stereospecific Copolymerization of Cyclopentene and Ethylene with Constrained Geometry Catalysis" *Chem. Commun.*, **2003**, 864-865.
112. Finze, M.; Reybuck, S.; Waymouth, R. M. "Propylene Polymerization w/ 1,2'-Bridged Bis(indenyl)zirconium Dichlorides", *Macromolecules*, **2003**, 36, 9325-9334.
113. Stancik, C. M.; Lavoie, A. R.; Schütz, J.; Achurra, P. A.; Lindner, P. L.; Gast, A. P.; Waymouth, R. M. "Micelles of Imidazolium-functionalized Polystyrene Diblock Copolymers Investigated with Neutron and Light Scattering", *Langmuir*, **2004**, 20, 596-605.
114. Wiyatno, W.; Chen, Z-R.; Liu.; Waymouth, R.M.; Krukoni, C.; Brennan, K. "Heterogeneous Composition and Microstructure of Elastomeric Polypropylene" *Macromolecules*, **2004**, 37, 701-708.
115. Mahanthappa, M. K.; Cole, A. P.; Waymouth, R. M. "Synthesis, Structure and Ethylene / α -Olefin Polymerization Reactivity of (Cyclopentadienyl)(nitroxide)titanium Complexes." *Organometallics*, **2004**, 23, 836-845.
116. Mahanthappa, M. K.; Cole, A. P.; Waymouth, R. M. "Synthesis, Structure and Reactivity of Hydroxylaminate Alkyltitanium Complexes." *Organometallics*, **2004**, 23, 1405-1410.
117. Huang, K.-W.; Waymouth, R. M. "Hydrolysis of CpTiCl₂(TEMPO) and Its application on One-pot Syntheses of CpTiCl(OR)₂ Complexes", *Dalton Trans.*, **2004**, 354-356.
118. Wilmes, G. M.; France, M. B.; Lynch, S. R.; Waymouth, R. M. "Effects of Ligand substitutions on rate of conformational isomerism in bis(2-arylidene) zirconocenes by NMR line-shape analysis and relaxation in the rotating frame" *Organometallics*, **2004**, 23, 2405-2411.
119. Reybuck, S. E.; Waymouth, R. M. "Investigation of Bridge and 2-Phenyl Substituent on Ethylene / α olefin Copolymerization behavior with 1,2-Bridged Bis(indenyl)zirconium Chlorides" *Macromolecules*. **2004**, 2342-2347.
120. Hung, J.; Waymouth, R. M. "Unconstrained" Geometry Complexes: Ethylene- α -Olefin Copolymerizations with a Tetramethyldisilyl-Bridged Constrained Geometry Catalyst Analog" *J. Polym. Sci., Part A: Polym. Chem.*, **2005**, 43, 3840-3851.
121. Reybuck, S. E.; Waymouth, R. M. "Ethylene/1-Hexene Copolymerization with Tetramethylsiloxane-Bridged Bis(indenyl) Metallocenes" *J. Polym. Sci., Part A: Polym. Chem.*, **2004**, 42, 3323-3331.
122. Huang, K-W.; Han, J. H.; Cole, A. P.; Musgrave, C. B.; Waymouth, R. M. "Homolysis of Weak Ti-O Bonds: Experimental and Theoretical Studies of Titanium Oxygen Bonds Derived from Stable Nitroxyl Radicals", *J. Am. Chem. Soc.*, **2005**, 127, 3807-3816.
123. Nyce, G.; Csihony, S.; Waymouth, R. M.; Hedrick, J. L. "A General and Versatile Approach to Thermally-Generated N-Heterocyclic Carbenes" *Chem. Eur. J.*, **2004**, 10, 4073-4079. Cover art.
124. Ketz, B. E.; Cole, A. P.; Waymouth, R. M. "Structure, Synthesis and Reactivity of a Pd N-Heterocyclic Carbene Enolate Complex" *Organometallics*, **2004**, 23, 2835-2837.
125. LaVoie, A.; Waymouth, R. M. "Catalytic Syntheses of Alternating, Stereoregular Ethylene / Cycloolefin Copolymers" *Tetrahedron*, **2004**, 60(34), 7147-7155.
126. Stancik, C. M.; Lavoie, A. R.; Achurra, P. A.; Waymouth, R. M.; Gast, A. P. "A Neutron Scattering Study of the Structure and Water Partitioning of Selectively Deuteriated Copolymer Micelles" *Langmuir*, **2004**, 20(21), 8975-8987.
127. Csihony, S.; Beaudette, T. T.; Sentman, A. C.; Nyce, G.; Waymouth, R. M.; Hedrick, J. L. "Bredereck's Reagent Revisited: Organocatalytic Ring-Opening Polymerization and Transesterification Reactions" *Adv. Syn. Cat.* **2004**, 346, 1081-1086.
128. Sentman, A.; Csihony, S.; Waymouth, R. M.; Hedrick, J. L. "Silver (I) Carbene Complexes / Ionic Liquids: Novel N-Heterocyclic Carbene Delivery Agents for Organocatalytic Transformations" *J. Org. Chem.*, **2005**, 70, 2391-2393.

129. Reybuck, S. E.; Lincoln, A.; Ma, S.; Waymouth, R. M. "Amine Bis(Phenolate) Zirconium Complexes: Influence of Ligand Structure and Cocatalyst On Copolymerization Behavior" *Macromolecules*, **2005**, *38*, 2552-2558.
130. Dove, A. P.; Xie, X.; Waymouth, R. M. "Cyclopentadienyl titanium hydroxylaminate complexes as highly active catalysts for the polymerization of propylene" *Chem. Comm.* **2005**, 2152 – 2154.
131. Csihony, S.; Culkun, D. A.; Sentman, A. C.; Dove, A. P.; Waymouth, R. M., Hedrick, J. L. "Single Component Catalyst/Initiators for the Organocatalytic Ring-Opening Polymerization of Lactide" *J. Am. Chem. Soc.*, **2005**, *127*, 9079-9084.
132. Coulembier, O.; Dove, A. P.; Pratt, R. C.; Sentman, A. C.; Culkun, D. A.; Mespouille, L.; Dubois, P.; Waymouth, R. M., Hedrick, J. L. "Latent, thermally activated organic catalysts for the on demand living polymerization of lactide." *Angew. Chem., Int. Ed.* **2005**, *44*, 4964-4968.
133. Dove, A. P.; Pratt, R. C.; Lohmeijer, B. G. G.; Waymouth, R. M.; Hedrick, J. L. "Thiourea-based Bifunctional Organocatalysts: Supramolecular Recognition for Living Polymerization" *J. Am. Chem. Soc.*, **2005**, *127*, 13798-13799.
134. Lincoln, A.; Wilmes, G. M.; Waymouth, R. M. "Dynamic NMR Studies of Cationic Bis(2-Phenylindenyl)Zirconium Pyridyl Complexes: Evidence for *Syn* Conformers in Solution" *Organometallics*, **2005**, *38*, 5828-5835.
135. Finze, M.; Bernhardt, E.; Berkei, M.; Willner, H.; Hung, J.; Waymouth, R. M. "[H(OEt₂)]⁺ and [Ph₃C]⁺ salts with the new borate anions [B(CF₃)₄]⁻, [(CF₃)₃BCN]⁻, and [B(CN)₄]⁻" *Organometallics*, **2005**, *24*, 5103-5109.
136. Ketz, B. E.; Ottenwaelder, X. G.; Waymouth, R. M. "Synthesis, Structure and Olefin Polymerization with Ni(II) N-Heterocyclic Carbene Enolates" *Chem. Comm.*, **2005**, 5693-5695.
137. Dove, A. P.; Pratt, R. P.; Lohmeijer, B. G. G.; Culkun, D. A.; Hagberg, E. C.; Nyce, G. W.; Waymouth, R. M.; Hedrick, J. L. "N-Heterocyclic Carbenes as an effective tool for the synthesis of polyesters" *Polymer*, **2006**, *47*, 4018-4025.
138. Dove, A. P.; Pratt, R. P.; Lohmeijer, B. G. G.; Li, H.; Hagberg, E. C.; Waymouth, R. M.; Hedrick, J. L. "N-Heterocyclic Carbenes as Organic Catalysts" In *N-Heterocyclic Carbenes in Synthesis*, 2006, pp 275-296.
139. Pratt, R.; Lohmeijer, B. G. G.; Long, D. A.; Waymouth, R. M.; Hedrick, J. L. "Triazabicyclodecene: A Simple Bifunctional Organocatalyst for Acyl Transfer and Ring-Opening Polymerization of Cyclic Esters" *J. Am. Chem. Soc.* **2006**, *128*(14); 4556-4557.
140. DeBeer George, S.; Huang, K.-W.; Waymouth, R. M.; Solomon, E. I. "Metal and Ligand K-edge XAS of Titanium-TEMPO complexes: Determination of Oxidation States and Insights into Ti-O Bond Homolysis", *Inorg. Chem.*, **2006**, *45*, 4468-4477.
141. Kraft, B. M.; Huang, K.-W.; Cole, A. P.; Waymouth, R. M. "Synthesis, Structure and Polymerization Activity of a Chelating Titanium Hydroxylaminate-Phenoxide Complex" *Helv. Chim. Acta.*, **2006**, *89*, 1589-1595.
142. Huang, K.-W.; Han, J. H.; Musgrave, C. B.; Waymouth, R. M. "Density Functional Theory Calculations of Ti-TEMPO complexes: Influence of Ancillary Ligation on the Strength of the Ti-O Bond" *Organometallics*, **2006**, *25*, 3317-3323.
143. Dove, A. P.; Li, H.; Pratt, R. C.; Lohmeijer, B. G. G.; Culkun, D. A.; Waymouth, R. M.; Hedrick, J. L. "Stereoselective Polymerization of Rac- and Meso-Lactide by a Sterically Encumbered N-Heterocyclic Carbene" *Chem. Commun.* **2006**, 2881-2883.
144. Coulembier, O.; Mespouille, L.; Hedrick, J. L.; Waymouth, R. M.; Dubois, P. "Metal-Catalyzed Ring-Opening Polymerization of β -Lactones: Synthesis of Ambiphilic Triblock Copolymers Based on Poly(dimethylmalic acid) *Macromolecules*, **2006**, *39*, 4001-4008.
145. Coulembier, O.; Lohmeijer, B. G.G.; Dove, A. P.; Pratt, R. P.; Culkun, D. A.; Benight, S. J.; Mespouille, L.; Dubois, P.; Waymouth, R. M.; Hedrick, J. L. "Alcohol Adducts of N-Heterocyclic

- Carbenes: Latent Catalysts for the Thermally-Controlled Living Polymerization of Cyclic Esters.” *Macromolecules*, **2006**, *39*, 5617-5628.
146. Gavranovic, G. T.; Smith, M. M.; Jeong, W.; Wong, A. Y.; Waymouth, R. M.; Fuller, G. G. “Effects of Temperature and Chemical Modification on Polymer Langmuir Films” *J. Phys. Chem. B*, **2006**, *110*, 22285-22290.
147. Hermans, T.; Lohmeijer, B. G.G.; Choi, J.; Dubois, G.; Pratt, R. C.; Kim, H.-C.; Waymouth, R. M.; Hedrick, J. L. “Application of Solvent-Directed Assembly of Block Copolymers to the Synthesis of Nanostructured Low-k Dielectric Materials” *Angew. Chem., Int. Ed.* **2006**, *45*, 6648-6652.
148. Choi, J.; Hermans, T. M.; Lohmeijer, B. G. G.; Pratt, R. C.; Frommer, J.; Waymouth, R. M.; Hedrick, J. L. “Monolayer Organosilicate Toroids and Cylinders: A Phase Diagram for Templating from a Block Copolymer” *Nano Lett.* **2006**, *6(8)* 1761-1764.
149. Lohmeijer, B. G. G.; Dubois, G.; Leibfarth, F.; Pratt, R. C.; Nederberg, F.; Nelson, A.; Waymouth, R. M.; Wade, C.; Hedrick, J. L. “Organocatalytic living ring-opening polymerization of cyclic carbosiloxanes” *Org. Lett.* **2006**, *8(21)* 4683-4686.
150. Pratt, R. C.; Lohmeijer, B. G. G.; Long, D. A.; Lundberf, P. N.; Dove, A. P.; Li, H.; Wade, C. G.; Waymouth, R. M.; Hedrick, J. L. “Exploration, Optimization and Application of Supramolecular Thiourea-Amine Catalysts for the Synthesis of Lactide (Co)polymers” *Macromolecules* **2006**, *39*, 7863-7871.
151. Gavranovic, G. T.; Csihony, S.; Bowden, N. B.; Hawker, C. J.; Waymouth, R. M.; Moerner, W.E.; Fuller, G. G. “Well-Controlled Living Polymerization of Perylene-Labeled Polyisoprenes and their use in Single-Molecule Imaging” *Macromolecules*, **2006**, *39*, 8121-8127.
152. Culkin, D. A.; Jeong, W.; Csihony, S.; Gomez, E. D.; Hedrick, J. L.; Balsara, N. P.; Waymouth, R. M. “Zwitterionic Polymerization of Lactide to Cyclic Poly(lactide)s by using N-Heterocyclic Carbene Organocatalysts” *Angew. Chem., Int. Ed.* **2007**, *46*, 2627-2630.
153. Nederberg, F.; Lohmeijer, B.G.G.; Leibfarth, F.; Pratt, R. C.; Choi, J.; Dove, A.P.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Ring Opening Polymerization of Trimethylene Carbonate" *Biomacromolecules*, **2007**, *8*, 153-160.
154. Lohmeijer, B. G. G.; Pratt, R. C.; Leibfarth, F.; Logan, J. W.; Long, D. A.; Dove, A. P. Nederberg, F.; Choi, J.; Wade, C.; Waymouth, R. M.; Hedrick, J. L. "Guanidine and Amidine Organocatalysts for Ring-Opening Polymerization of Cyclic Esters" *Macromolecules*, **2006**, *39*, 8574-8583.
155. Zhang, L.; Nederberg, F.; Pratt, R. C.; Waymouth, R. M.; Hedrick, J. L.; Wade, C. G. "Phosphazene Bases: A New Category of Organocatalysts for the Living Ring-Opening Polymerization of Cyclic Esters" *Macromolecules*, **2007**, *40*, 4154-4158.
156. Coulembier, O.; Kiesewetter, M.; Mason, A.; Dubois, P.; Hedrick, J. L.; Waymouth, R. M. “A Distinctive Organocatalytic Approach to Macromolecular Architectures”, *Angew. Chem., Int. Ed.* **2007**, *46*, 4719-4721.
157. Benson, S.; Payne, B.; Waymouth, R. M. "Synthesis and Reactivity of Allyl Nickel (II) N-Heterocyclic Carbene Enolate Complexes" *J. Polym. Sci., Part A, Polym. Chem.*, **2007**, *45*, 3637-3647.
158. Jeong, W.; Hedrick, J. L.; Waymouth, R. M. "Organic Spirocyclic Initiators for the Ring-Expansion Polymerization of β -Lactones" *J. Am. Chem. Soc.*, **2007**, *129*, 8414-8415.
159. Gomez, F. J.; Kamber, N. E.; Deschamps, N. M.; Cole, A.P.; Wender, P. A.; Waymouth, R. M. "N-Alkoxyimidazolylidene transition metal complexes: Application to [5+2] and [4+2] cycloaddition reactions" *Organometallics*, **2007**, *26*, 4541-4545.
160. Kamber, N. E.; Jeong, W.; Waymouth, R. M.; Pratt, R. C.; Lohmeijer, B. G. G.; Hedrick, J. L. "Organocatalytic Ring-Opening Polymerization" *Chem. Rev.* **2007**, *107*, 5813-5840.

161. Conley, N. R.; Labios, L. A.; Pearson, D. M.; McCrory, C.; Waymouth, R. M. "Aerobic Alcohol Oxidation with Cationic Palladium Complexes: Insights into Catalyst Design and Decomposition" *Organometallics*, **2007**, *26*, 5447-5453.
162. Nederberg, F.; Trang, V.; Pratt, R. C.; Mason, A. F.; Frank, C. W.; Waymouth, R. M.; Hedrick, J. L. "New Ground for Organic Catalysis: A Ring-Opening Polymerization Approach to Hydrogels" *Biomacromolecules*, **2007**, *8(11)*, 3294-3297.
163. Jeon, S.-J.; Waymouth, R. M. "New Bimetallic Complexes of Late Transition Metals Involving Pyrazole-Bridged Bis N-Heterocyclic Carbene Ligands" *Dalton*, **2008** 437-439.
164. Pratt, R. C.; Nederberg, F.; Waymouth, R. M.; Hedrick, J. L. "Tagging alcohols with cyclic carbonate: a versatile (meth)acrylate equivalent for ring-opening polymerization" *Chem. Commun.* **2008**, 114-116.
165. Coulembier, O.; Delva, X.; Hedrick, J.L.; Waymouth, R. M., Dubois, P. "Synthesis of Biomimetic Poly(hydroxybutyrate): Alkoxy- and Carboxytriazolines as Latent Ionic Initiator" *Macromolecules*, **2007**, *40(24)*, 8560-8567.
166. Kim, S. H.; Nederberg, F.; Zhang, L.; Wade, C. G.; Waymouth, R. M.; Hedrick, J. L. "Hierarchical Assembly of Nanostructured Organosilicate Networks via Stereocomplexation of Block Copolymers" *Nano Lett.*, **2008**, *8(1)*, 294-301.
167. Chuma, A.; Horn, H. W.; Swope, W. C.; Pratt, R. C.; Zhang, L.; Lohmeijer, B. G. G.; Wade, C. G.; Waymouth, R. M.; Hedrick, J. L.; Rice, J. E. "The Reaction Mechanism for the Organocatalytic Ring-Opening Polymerization of L-Lactide Using a Guanidine-Based Catalyst: Hydrogen-Bonded or Covalently Bound?" *J. Am. Chem. Soc.*, **2008**, 6794-6754.
168. Stelzig, S.; Tamm, M.; Waymouth, R. M. "Copolymerization Behavior of Titanium Imidazoline-2-iminato Complexes" *J. Polym. Sci., Part A, Polym. Chem.*, **2008** *46*, 6064-6070.
169. Zimmermann, M.; Tornroos, K. W.; Waymouth, R. M.; Anwender, R. "Structure-Reactivity Relationships of Amido-Pyridine Supported Rare-Earth Metal Alkyl Complexes" *Organometallics*, **2008**, 4310-4317.
170. Scholten, M.; Hedrick, J. L.; Waymouth, R. M. "Group Transfer Polymerization of Acrylates Catalyzed by N-Heterocyclic Carbenes" *Macromolecules*, **2008**, *41(20)*, 7399-7404.
171. Fukushima, K.; Pratt, R. C.; Nederberg, F.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Approach to Amphiphilic Block Copolymers Capable of Stereocomplexation and Self-Assembly" *Biomacromolecules*, **2008**, *9(11)*, 3051-3056.
172. Kim, S.-H.; Park, O.-H.; Nederberg, F.; Kim, H.-C.; Waymouth, R. M.; Hedrick, J. L. "Applications of Block Copolymer Self-Assembly to the Fabrication of Well-Defined Micellar TiO₂ Nanostructures" *Small.*, **2008**, *12(4)*, 2162-2165.
173. Dove, A. P.; Kiesewetter, E. T.; Ottenwaelder, X.; Waymouth, R. M. "Propylene Polymerization with Cyclopentadienyltitanium(IV) Hydroxylaminate Complexes" *Organometallics*, **2009**, *28(2)*, 405-412.
174. Son, K.-S.; Joege, F.; Waymouth, R. M. "Copolymerization of Styrene and Ethylene at High Temperature with Titanocenes Containing a Pendant Amine Donor" *Macromolecules*, **2008**, *41(24)* 9663-9668.
175. Kim, S. H.; Tan, J. P. K.; Nederberg, F.; Fukushima, K.; Yang, Y. Y.; Waymouth, R. M.; Hedrick, J. L. "Mixed Micelle Formation through Stereocomplexation between Enantiomeric Poly(lactide) Block Copolymers" *Macromolecules*, **2009**, *42(1)* 25-29.
176. Kamber, N. E.; Jeong, W.; Gonzalez, S.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbenes for the Organocatalytic Ring-Opening of ϵ -Caprolactone" *Macromolecules*, **2009**, *42(5)*, 1634-1639.

177. Jeong, W.; Shin, E. J.; Culkin, D. A.; Hedrick, J. L.; Waymouth, R. M. "Zwitterionic Polymerization: A Kinetic Strategy for the Controlled Synthesis of Cyclic Polylactide" *J. Am. Chem. Soc.*, **2009**, *131*(13), 4884-4891.
178. Tan, J. P. K.; Kim, S. H.; Nederberg, F.; Appel, E. A.; Waymouth, R. M.; Zhang, Y.; Hedrick, J. L.; Yang, Y. Y. "Hierarchical Supramolecular Structures for Sustained Drug Release" *Small*, **2009**, *5*(13), 1504-1507.
179. Nederberg, F.; Appel, E.; Tan, J. P. K.; Kim, S. H.; Fukushima, K.; Sly, J.; Miller, R. D.; Yang, Y. Y.; Waymouth, R. M.; Hedrick, J. L. "A Simple Approach to Stabilized Micelles Employing Mikto-arm Terpolymers and Stereocomplexes with Application in Paclitaxel Delivery" *Biomacromolecules*, **2009**, *10*, 1460-1468.
180. Pearson, D. M.; Waymouth, R. M. "Mechanistic Studies of the Oxidative Dehydrogenation of Methanol using a Cationic Pd Complex" *Organometallics*, **2009**, *28*, 3896-3900.
181. Cooley, C. B.; Trantow, B. M.; Nederberg, F.; Kiesewetter, M. K.; Hedrick, J. L.; Waymouth, R. M.; Wender, P. A. "Oligocarbonate Molecular Transporters: Oligomerization Based Syntheses and Cell Penetrating Studies" *J. Am. Chem. Soc.*, **2009**, *131*, 16401-16403.
182. Kiesewetter, M. K.; Scholten, M.; Kirn, N.; Kiesewetter, M. K.; Weber, R. L.; Hedrick, J. L.; Waymouth, R. M. "Guanidine Organic Catalysts: What's magic about Triazabicyclododecene", *J. Org. Chem.*, **2009**, *74*, 9490-9496.
183. Son, K. S.; Waymouth, R. M. "Stereospecific Styrene Polymerization and Ethylene-Styrene Copolymerization with Titanocenes Containing Pendant Amine Donors" *J. Polym. Chem. A.; Polym. Chem.*, **2010**, *48*, 1579-1585.
184. Aharonovich, S.; Botoshanski, M.; Rabinovich, Z.; Waymouth, R. M.; Eisen, M.; "Lithium Furyl and Pyridyl Amidinates as Building Blocks for Coordinative Polymers, Ladder and Cage Structures" *Inorganic Chemistry*, **2010**, *49*, 1220-1229.
185. Zhang, L.; Pratt, R. C.; Nederberg, F.; Waymouth, R. M.; Wade, C.; Hedrick, J. L. "Acyclic Guanidines as Organic Catalysts for Living Polymerization" *Macromolecules*, **2010**, *43*, 1660-1664.
186. Kiesewetter, M. K.; Shin, E. J.; Hedrick, J. L.; Waymouth, R. M. "Organocatalysis: Opportunities and Challenges for Polymer Synthesis" *Macromolecules*, **2010**, *43*, 2093-2107. doi: 10.1021/ma9025948
187. Kamber, N. E.; Tsujii, Y.; Keets, K.; Pratt, R. C.; Nyce, G. W.; Waymouth, R. M.; Hedrick, J. L. "Chemical Recycling of Poly(ethylene terephthalate) (PET) Bottles using N-heterocyclic Carbenes from Ionic Liquids" *J. Chem. Educ.*, **2010**, *87*, 519-521.
188. Kiesewetter, E. T.; Randall, S.; Radlauer, M.; Waymouth, R. M. "Stereospecific Octahedral Group 4 Bisphenolate Ether Complexes for Olefin Polymerization" *J. Am. Chem. Soc.*, **2010**, *132*, 5566-5567.
189. Aharonovich, S.; Botoshanski, M.; Tumanskii, B.; Nomura, K.; Waymouth, R. M.; Eisen, M. "Mono- and bis-amidinate 2,6-xylylimido vanadium chlorides: synthesis, structure and reactivity" *Dalton*, **2010**, *39*, 5643-5649.
190. Son, K. S.; Waymouth, R. M. "Selective Ethylene Oligomerization in the Presence of ZnR₂: Synthesis of Functionalized Ethylene Oligomers" *Organometallics*, **2010**, *29*, 3515-3520.
191. Aharonovich, S.; Botoshanski, M.; Waymouth, R. M.; Eisen, M. "Chemoselectivity Diversity in the reaction of LiNC₆F₅SiMe₃ with nitriles, and synthesis, structure and reactivity of zirconium mono- and tris-2-(2-pyridyl)tetrafluorobenzimidazolate complexes" *Inorg. Chem.* **2010**, *49*, 9217-9229.
192. Painter, R. M., Pearson, D. M., Waymouth, R. M. "Selective catalytic oxidation of glycerol to dihydroxyacetone" *Angew. Chem., Int. Ed.* **2010**, *49*, 9456-9459. doi: 10.1002/anie.201004063

193. Kiesewetter, M. K.; Waymouth, R. M. "Kinetics of an Air and Water Stable Ru(IV) Catalyst for the Deprotection of Allyl alcohol in Water" *Organometallics*, **2010**, *29*, 6051-6056. doi: 10.1021/om100892v
194. Fukushima, K.; Coulembier, O.; Lecuyer, J. M.; Al-Megren, H. A.; Mohammad, A.; Alsewailam, F. D.; McNeil, M. A.; Dubois, P.; Waymouth, R. M.; Horn, H. W.; Rice, J. E.; Hedrick, J. L. "Closing the Loop on Recycling: Organocatalytic Depolymerization of Poly(ethyleneterephthalate)" *J. Polym. Sci. Part A: Polym. Chem.*, **2011** *49*, 1273-1281. doi:10.2002/pola.24551
195. Pearson, D. M.; Conley, N. R., Waymouth, R. M. "Oxidatively Resistant Ligands for Pd-catalyzed Aerobic Alcohol Oxidation" *Organometallics*, **2011**, *30*, 1445-1453. dx.doi.org/10.1021/om101037k
196. Shin, E. J.; Jeong, W.; Brown, H. A. Koo, B. J., Hedrick, J. L.; Waymouth, R. M. "Synthesis and Crystallization of High Molecular Weight Cyclic Poly(ϵ -caprolactone)" *Macromolecules*, **2011**, *44*, 2773-2779.
197. Kim, S.H.; Tan, J. P. K.; Fukushima, K.; Nederberg, F.; Yang, Y.Y.; Waymouth, R. M.; Hedrick, J. L. "Thermoresponsive Nanostructured Polycarbonate Block Copolymers as Biodegradable Therapeutic Delivery Agents", *Biomaterials*, **2011**, *32*, 5505-5514.
198. Shin, E. J.; Brown, H. A.; Gonzalez, S.; Jeong, W.; Hedrick, J. L.; Waymouth, R. M. "Zwitterionic Copolymerization: Synthesis of Cyclic Gradient Copolymers" *Angew. Chem., Int. Ed.* **2011**, *50*, 6388-6391.
199. Son, K.S.; Pearson, D. M., Jeon, S. J., Waymouth, R. M. " Synthesis and Structure of Mono-, Bi- and Trimetallic N,N-Bis[2-diphenylphosphino)phenyl]-formadine Complexes" *Eur. J. Inorg. Chem.*, **2011**, 4256-4261. DOI: [10.1002/ejic.201100492](https://doi.org/10.1002/ejic.201100492)
200. Pearson, D. M.; Conley, N. R.; Waymouth, R. M. "Palladium-Catalyzed Carbonylation of Diols to Cyclic Carbonates" *Adv. Synth. Cat.* **2011**, *353*, 3007-3013. doi:10.002/adsc.201100240
201. Kiesewetter, M. K.; Edward, J. A., Kim, H.; Waymouth, R. M. "Polycondensation of Butene-diol: Synthesis of Telechelic 2-Butene-1,4-diol Oligomers" *J. Am. Chem. Soc.*, **2011**, *133*, 16390-16393. DOI: [10.1021/ja207465h](https://doi.org/10.1021/ja207465h)
202. Shin, E. J.; Jones, A. E.; Waymouth, R. M. "Stereo-complexation in Cyclic and Linear Polylactide Blends" *Macromolecules*, **2012**, *45*, 595-598. DOI: [10.1021/ma202184j](https://doi.org/10.1021/ma202184j)
203. Perry, R. H.; Chingin, K.; Brownell, K. R.; Waymouth, R. M.; Cahill, T. J.; Zare, R. N. "Transient Ru-Methyl Formate Intermediates Generated in Noyori Transfer Hydrogenation Catalysis" *Proc. Nat. Acad. Sci.* **2012**, *109*(7), 2246-2250. doi:[10.1073/pnas.1118934109](https://doi.org/10.1073/pnas.1118934109)
204. Randoll, S.; Kiesewetter, E. T.; Waymouth, R. M. " Stereo- and Regioselective Propylene Polymerization with Group 4 bis(phenolate) Ether Complexes", *J. Polym. Sci. A., Polym. Chem.*, **2012**, *50*, 2604-2611.
205. Kim, H.; Hedrick, J. L.; Waymouth, R. M. "Facile Synthesis of Functionalized Lactones and Organocatalytic Ring Opening Polymerization" *ACS Macro Letters*, **2012**, *1*, 845-847. dx.doi.org/10.1021/mz3001397
206. Geihe, E. I.; Cooley, C. B.; Simon, J.; Kiesewetter, M. K.; Edward, J. A.; Hickerson, R. P.; Kaspar, R. L.; Hedrick, J. L.; Waymouth, R. M.; Wender, P. A., "Designed guanidinium-rich amphipathic oligocarbonate molecular transporters complex, deliver and release siRNA in cells" *Proc. Nat. Acad. Sci.* **2012**, *109*(33), 13171-13176, doi:[10.1073/pnas.1211361109](https://doi.org/10.1073/pnas.1211361109)
207. Edward, J.A.; Kiesewetter, M. K.; Kim, H.; Flanagan, J. C. A.; Hedrick, J. L.; Waymouth, R. M. "Organocatalytic Synthesis of Quinine-functionalized Carbonate Polymers" *Biomacromolecules*, **2012**, *13*(8), 2483-2489. doi: [10.1021/bm300718b](https://doi.org/10.1021/bm300718b).
208. Brown, H.; De Crisci, A.; Hedrick, J. L.; Waymouth, R. M. "Amidine-Mediated Zwitterionic Polymerization of Lactide" *ACS Macro Letters*, **2012**, *1*, 1113-1115. doi.org/10.1021/mz300276u.
209. Simon, J.; Olsson, J. V.; Kim, H.; Tenney, I. F.; Waymouth, R. M. "Semicrystalline

- Dihydroxyacetone Copolymers Derived from Glycerol " *Macromolecules*, **2012**, *45*, 9275-9281. doi.org/10.1021/ma302311h.
210. Coady, D. J.; Sardon, H.; Engler, A. C.; Jones, G. O.; Horn, H. W.; Waymouth, R. M.; Rice, J. E.; Yang, Y. Y.; Hedrick, J. L. "Polymerizing Base Sensitive Cyclic Carbonates Using Acid Catalysts" *ACS Macro Lett.* **2013**, *2*, 306-312.
211. Kiesewetter, E. T.; Waymouth, R. M. "Octahedral Group IV Bis(phenolate) Catalysts for 1-Hexene Homopolymerization and Ethylene/1-Hexene Copolymerization", *Macromolecules*, **2013**, *46*, 2569-2575. doi: 10.1021/ma400116w
212. De Crisci, A., Chung, K., Oliver, A., Waymouth, R. M. "Chemo- and Stereoselective Alcohol Oxidation with Chiral Palladium Catalysts" *Organometallics*, **2013**, *32*, 2257-2266. dx.doi.org/10.1021/om40015491
213. Chung, K.; Banik, S. M.; De Crisci, A. G.; Pearson, D. M.; Blake, T.; Olsson, J. V.; Ingram, A. J.; Zare, R. N.; Waymouth, R. M. "Chemoselective Pd-catalyzed Oxidation of Polyols: Synthetic Scope and Mechanistic Studies" *J. Am. Chem. Soc.*, **2013**, *135*, 7593-7602. doi: 10.1021/ja4008694
214. Brown, H. A.; Waymouth, R. M. "Zwitterionic Ring-Opening Polymerization for the Synthesis of High Molecular Weight Cyclic Polymers" *Acc. Chem. Res.* **2013**, *46*, 2585-2596. DOI: 10.1021/ar400072z.
215. Chung, Y.-L.; Olsson, J. V.; Li, R.J.; Frank, C. W.; Waymouth, R. M.; Billington, S.; Sattely, E. "Graft polymerization of Lactide onto Lignin and Application in Biobased Composites" *ACS Sustainable Chem. Eng.*, **2013**, *1*, 1231-1238. dx.doi.org/10.1021/sc4000835
216. Brownell, K. R.; McCrory, C. C. M.; Chidsey, C. E. D.; Perry, R. H.; Zare, R. N.; Waymouth, R. M. "Electrooxidation of Alcohols Catalyzed by Amino Alcohol Ligated Ruthenium Complexes, *J. Am. Chem. Soc.*, **2013**, *135*, 14299-14305. dx.doi.org/10.1021/ja4055564
217. Brown, H. A.; Chang, Y. A.; Waymouth, R. M. "Zwitterionic Polymerization to Generate High Molecular Weight Cyclic Poly(carbosiloxanes), *J. Am. Chem. Soc.*, **2013**, *135*, 18738-18741. dx.doi.org/10.1021/ja409843v
218. Elkin, T.; Botoshansky, M.; Waymouth, R. M.; Eisen, M. S. "Titanium Bis(amidates) Bearing Electron Donating Pendant Arms as Catalysts for the Stereospecific Polymerization of Propylene" *Organometallics*, **2014**, *33*, 840-843. dx.doi.org/10.1021/om401165g
219. Ingram, A. J.; Solis-Ibarra, D.; Zare, R. N.; Waymouth, R. M., "Trinuclear Pd₃O₂ Intermediate in Aerobic Oxidation Catalysis" *Angew. Chem., Int. Ed.*, **2014**, *53*, 5648-5652. dx.doi.org/10.1002/anie.201400134
220. Acharya, A. K.; Chang, Y.; Jones, G.A.; Rice, J. A.; Hedrick, J. L.; Hans W. Horn, H. W.; Waymouth, R. M., "Experimental and Computational Studies on the Mechanism of Zwitterionic Ring-Opening Polymerization of δ -Valerolactone with N-Heterocyclic Carbenes" *J. Phys. Chem. B.*, **2014**, *118*, 6553-6560. [dx.doi.org/10.1021/jp500200b](https://doi.org/10.1021/jp500200b)
221. Brown, H. A.; Xiong, S.; Medvedev, G. A.; Chang, Y. A.; Abu-Omar, M. M.; Caruthers, J. M.; Waymouth, R. M. "Zwitterionic Ring-Opening Polymerization: Kinetic Models for the Synthesis of Cyclic Poly(caprolactones)" *Macromolecules* **2014**, *47*, 2955-2963. doi:10.1021/ma500395j
222. Blake, T.; Waymouth, R. M. " Organocatalytic Ring Opening Polymerization of Morpholinones: New Strategies to Functionalized Polyesters " *J. Am. Chem. Soc.*, **2014**, *136*, 9252-9255. DOI: 10.1021/ja503830c

223. Myung, J.; Strong, N.I.; Galega, W.M.; Sundstrom, E.R.; Flanagan, J. C. A.; Woo, S-G.; Waymouth, R. M.; Criddle, C. S. "Disassembly and reassembly of polyhydroxyalkanoates: Recycling through abiotic depolymerization and biotic repolymerization" *Bioresource Technol.* **2014**, 167-174. dx.doi.org/10.1016/j.biortech.2014.07.105
224. Zhang, X.; Waymouth, R. M. "Zwitterionic Ring Opening Polymerization with Isothioureas" *ACS Macro. Lett.*, **2014**, 3, 1024-1028. dx/doi.org/10.1021/mz500525n.
225. Stukenbroeker, T.; Solis-Ibarra, D.; Waymouth, R. M.; "Synthesis and Topological Trapping of Cyclic Poly(alkylene phosphates)" *Macromolecules*, **2014**, 47, 8224-8230. doi.10.1021/ma501764c
226. Chan, J. M. W.; Zhang, X.; Brennan, M. K.; Sardon, H.; Engler, A. C.; Fox, C.H.; Frank, C.W.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Ring-Opening Polymerization of Trimethylene Carbonate to Yield a Biodegradable Polycarbonate" *J. Chem. Ed.*, **2015**, 92 708-713. DOI: 10.1021/ed500595k
227. Jones, G. O.; Chang, Y. A.; Horn, H. W.; Acharya, A. K.; Rice, J. E.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbene-Catalyzed Ring-Opening Polymerization of ϵ -caprolactone with and without Alcohol Initiators: Insights from Theory and Experiment" *J. Phys. Chem. B.*, **2015**, 119, 5728-5737. doi:10.1021/acscpcb.5b01595
228. Barcan, G. A.; Zhang, X.; Waymouth, R. M. "Covalent Adaptable Networks derived from Dithiolanes: Deformable Hydrogels." *J. Am. Chem. Soc.* **2015**, 137, 5650-5653. doi: 10.1021/jacs.5b02161.
229. Chang, Y.; Waymouth, R. M. "Ion-pairing Effects in the Zwitterionic Ring-Opening Polymerization of Valerolactone" *Polym. Chem.*, **2015**, 6, 5212-5218. doi: 10.1039/c5py00662g.
230. Flanagan, J. C. A.; Kang, E. J.; Strong, N. I.; Waymouth, R. M. "Catalytic Dimerization of Crotonates", *ACS Catalysis*, **2015** 5, 5328-5332. DOI: 10.1021/acscatal.5b00930.
231. Stukenbroeker, T. S.; Bandar, J. S.; Zhang, X.; Lambert, T. H.; Waymouth, R. M. "Cyclopropenimine Superbases: Competitive Initiation Processes in Lactide Polymerization" *ACS Macro Lett.*, **2015**, 4, 853-856. DOI: 10.1021/acsmacrolett.5b00421.
232. Buonaiuto, M.; De Crisci, A. G.; Jaramillo, T. F.; Waymouth, R. M. "Electrooxidation of Alcohols with Electrode-Supported Transfer Hydrogenation Catalysts" *ACS Catal.* **2015**, 5, 7343-7349, doi:10.1021/acscatal.5b01830.
233. Ingram, A. J.; Walker, K. L.; Zare, R. N.; Waymouth, R. M. "Catalytic Role of Multinuclear Palladium-Oxygen Intermediates in Aerobic Oxidation Followed by Hydrogen Peroxide Disproportionation" *J. Am. Chem. Soc.* **2015**, 137, 13632-13646, doi: 10.1021/jacs.5b08719.
234. Venkataraman, S.; Ng, V. W. L.; Coady, D. J.; Horn, H. W.; Jones, G. A.; Fung, T. S.; Sardon, H.; Waymouth, R. M.; Hedrick, J. L.; Yang, Y. Y. "A Simple and Facile Approach to Functional Eight-Membered Aliphatic Cyclic Carbonates and Their Organo-catalytic Polymerization" *J. Am. Chem. Soc.* **2015**, 137, 13851-13860. doi: 10.1021/jacs.5b06355
235. Hsu, H.-T.; Trantow, B. M.; Waymouth, R. M.; Wender, P.A. "Bioorthogonal Catalysis: A General Method to Evaluate Metal-catalyzed Reactions in Real Time in Living Systems Using a Cellular Luciferase Reporter System" *Bioconj. Chem.*, **2016**, 37, 376-382. doi:10.1021/acs.bioconjchem.5b00469
236. Ramakrishnan, S.; Waldie, K.M.; Warnke, I.; De Crisci, A. G.; Batista, V.S.; Waymouth, R. M.; Chidsey, C. E. D. " Experimental and Theoretical Study of CO₂ Insertion into Ruthenium Hydride Complexes" *Inorg. Chem.* **2016**, 55, 1623-1632, doi: 10.1021/acs.inorgchem.5b02556.
237. Myung, J.; Flanagan, J.C.A.; Waymouth, R. M.; Criddle, C.S. " Methane- or Methanol-Oxidation Dependent Synthesis of Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) by Obligate Type II Methanotrophs" *Process Biochem.* **2016**, 51, 561-567. dx.doi.org/10.1016/j.procbio.2016.02.005.

238. McKinlay, C. J., Waymouth, R. M.; Wender, P.A. "Cell-Penetrating, Guanidinium-Rich Oligophosphoesters: Effective and Versatile Molecular Transporters for Drug and Probe Delivery", *J. Am. Chem. Soc.*, **2016**, *138*, 3510-3517. doi: 10.1021/jacs.5b13452.
239. Zhang, X.; Jones, G. O.; Hedrick, J.L.; Waymouth, R. M. "Fast and Selective Ring-Opening Polymerization by Alkoxides and Thioureas " *Nature Chem.* **2016**, *8*, 1047-1053. doi: 10.1038/nchem.2574.
240. Flanagan, J.C.A.; Myung, J.; Waymouth, R. M.; Criddle, C. S. "Poly(hydroxyalkanoate) recycling: a combined chemical-biological approach utilizing methane and methanotrophic bacteria" *ChemistrySelect*, **2016**, *1*, 2327-2331. doi: 10.1002/slct.201600592.
241. Chung, K., Waymouth, R.M. "Selective Catalytic Oxidation of Unprotected Carbohydrates" *ACS Catalysis*, **2016**, *6*, 4653-4659. DOI: 10.1021/acscatal.6b01501.
242. Davis, D.C.; Walker, K. L.; Hu, C.; Zare, R. N.; Waymouth, R. M.; Dai, M. "Catalytic Spirolactonization of Hydroxycyclopropanols: Total Synthesis of Levantenolides" *J. Am. Chem. Soc.*, **2016**, *138*, 10693-10699. doi:10.1020/jac.6b06573.
243. Rudenko, A.E.; Clayman, N.E.; Maclaren, J. K.; Waymouth, R. M. "Reversible Electropolymerization of Ni Complexes Based on Redox-Mediated Ligand Exchange", *Chem. Select*, **2016**, *1*, 3491-3496. DOI: 10.1002/slct.201600523
244. Chang, Y. A.; Rudenko, A. E.; Waymouth, R. M. "Zwitterionic Ring-Opening Polymerization of N-substituted 8-membered Cyclic Carbonates to Generate Cyclic Poly(carbonate)s" *ACS Macro. Lett.* , **2016**, *5*, 1162-1166. doi: 10.1021/acsmacrolett.6b00591
245. McKinlay, C. J.; Vargas, J. R.; Blake, T. R.; Hardy, J. W.; Kanada, M.; Contag, C. H.; Wender, P. A.; Waymouth, R. M. "Charge-altering Releasable Transporters (CARTs) for the delivery and release of messenger RNA in living animals" *Proc. Natl. Acad. Sci.*, **2017**, *114*, E448-E456. doi: 10.1073/pnas.1614193114
246. Waldie, K.M.; Flajlslik, K.R.; McLoughlin, E.; Chidsey, C.E.D.; Waymouth, R. M. "Electrocatalytic Alcohol Oxidation with Ruthenium Transfer Hydrogenation Catalysts" *J. Am. Chem. Soc.*, **2017**, *139*(2), 738-748, doi: 10.1021/jacs.6b09705
247. Lin, B.; Waymouth, R. M. "Urea Anions: Simple, Fast, and Selective Catalysts for Ring-Opening Polymerizations" *J. Am. Chem. Soc.*, **2017**, *139*(4), 1645-1652, doi: 10.1021/jacs.6b11864
248. Zhang, X., Waymouth, R. M. "1,2 Dithiolane Derived Dynamic, Covalent Materials: Cooperative Self-assembly and Reversible Crosslinking" *J. Am. Chem. Soc.*, **2017**, *139*(10), 3822-3833. doi: 10.1021/jacs.7b00039
249. Waldie, K. M.; Ramakrishnan, S.; Kim, S.; Maclaren, J. K.; Chidsey, C. E. D., Waymouth, R. M. "Multi-Electron Transfer at Cobalt: Influence of the Phenylazopyridine Ligand " *J. Am. Chem. Soc.*, **2017**, *139*(12), 4540-4550 doi: 10.1021/jacs.7b01047
250. Chang, Y. A.; Waymouth, R. M. "Recent Progress on the Synthesis of Cyclic Polymers via Ring-Expansion Strategies" *J. Polym. Sci. A: Polym. Chem.* **2017**, *55*, 2892-2902. doi:10.1002/pola.28635
251. Waldie, K. M.; Kim, S.; Ingram, A. J.; Waymouth, R. M. "Cyclopentadienyl Cobalt Complexes as Precatalysts for Electrocatalytic Hydrogen Evolution" *Eur. J. Inorg. Chem.* **2017**, 2755-2761. doi: 10.1002/ejic.201700188
252. Myung, J.; Flanagan, J. C. A.; Waymouth, R. M.; Criddle, C. S. "Expanding the range of polyhydroxyalkanoates synthesized by methanotrophic bacteria through the utilization of omega-hydroxyalkanoate co-substrates" *AMB Express*, **2017**, *7*:118. DOI: 10.1186/s13568-017-0417-y
253. Walker, K. L.; Dornan, L.M.; Zare, R. N.; Waymouth, R. M.; Muldoon, M. J. "Catalytic Oxidation of Styrenes with Hydrogen Peroxide in the Presence of Cationic Palladium Complexes" *J. Am. Chem. Soc.*, **2017**, *139*, 12495-12503, doi: 10.1021/jacas.7b05413.
254. Margulis, K.; Zhang, X.; Joubert, L.-M.; Bruening, K.; Tassone, C. J.; Zare, R. N.; Waymouth, R. M. "Formation of Polymeric Nanocubes by Self-Assembly and Crystallization of Dithiolane-

- Containing Triblock Copolymers" *Angew. Chem. Int. Ed.*, **2017**, *56* (51) 16357-16362, doi: 10.1002/anie.201709564, doi: 10.1002/ange.201709564
255. Zhang, X.; Fevre, M.; Jones, G. O.; Waymouth, R. M. "Catalysis as an Enabling Science for Sustainable Polymers" *Chem. Rev.* **2018**, *118*, 839-885. doi: 10.1021/acs.chemrev.7b00329.
256. Yang, S-S.; Brandon, A. M.; Flanagan, J. C. A.; Yang, J.; Cai, S-Y.; Fan, H-Q.; Wang, Z-Y.; Ren, J.; Benbow, E.; Ren, N-Q.; Waymouth, R. M.; Zhou, J.; Criddle, C. S.; Wu, W-M. "Biodegradation of polystyrene wastes in yellow mealworms (larvae of *Tenebrio molitor* Linnaeus): factors effecting biodegradation rates and the abilit of polystyrene-fed larvae to complete their life cycle" *Chemosphere*, **2018**, *191*, 979-989. doi: 10.1016/j.chemosphere.2017.10.117.
257. Ho, W. C., Chung, K.; Ingram, A. J., Waymouth, R. M. "Pd-Catalyzed Aerobic Oxidation Reactions: Strategies to Increase Catalyst Lifetimes", *J. Am. Chem. Soc.*, **2018**, *140*, 748-757. doi: 10.1021/jacs.7b11372.
258. Lin, B.; Waymouth, R. M. "Organic Ring-Opening Polymerization Catalysts: Optimizing Reactivity by Balancing Acidity" *Macromolecules*, **2018**, *51*, 2932-2938. doi: 10.1021/acs.macromol.8b00540
259. Wu, W-W.; Seki, T.; Walker, K. L.; Waymouth, R. M. "Molybdenum Transfer Hydrogenation Catalysts" *Organometallics*, **2018**, *37*, 1428-1431. doi: 10.1021/acs.organomet.8b00086.
260. Benner, N. L.; Near, K. E.; Bachmann, M. H.; Contag, C. H.; Waymouth, R. M.; Paul A. Wender, P. A. "Functional DNA Delivery Enabled by Lipid-Modified Charge-Altering Releasable Transporters (CART)s", *Biomacromolecules*, **2018**, *19*, 2812-2824. doi: 10.1021/acs.biomac.8b00401
261. McKinlay, C.J.; Benner, N.L.; Haabeth, O.A.; Waymouth, R. M.; Wender, P.A. "Enhanced mRNA delivery into lymphocytes enable by lipid-varied libraries of Charge-Altering Releasable Transporters" *Proc. Nat. Acad. Sci.*, **2018**, *115*(26), E5859-E5866. doi: 10.1073/pnas.1805358115
262. Haalbeth, O.; Blake, T.; McKinlay, C. J.; Waymouth, R. M.; Wender, P. A.; Levy, R.; "Vaccination with Charge-Altering Releasable Transporters of mRNA Cures Established Experimental Tumors" *Proc. Nat. Acad. Sci.*, **2018**, *115*(39) E9153-E9161. doi: www.pnas.org/cgi/doi/10.1073/pnas.1810002115 PMID: 30201728
263. Rudenko, A. E.; Clayman, N. E.; Walker, K. L.; Maclaren, J. K.; Zimmerman, P. M.; Waymouth, R. M. "Ligand-Induced Reductive Elimination of Ethane from Azopyridine Palladium Dimethyl Complexes" *J. Am. Chem. Soc.*, **2018**, *140*, 11408-11415. doi: 10.1021/jacs8b06398.
264. Clayman, N.E.; Manumpil, M. A.; Umeyama, D.; Rudenko, A. E.; Karunadasa, H. I.; Waymouth, R. M. "Carving Out Pores in Redox-Active 1D Coordination Polymers", *Angew. Chem., Int. Ed.* **2018**, *57*, 14585-14588. doi: 10.1002/anie.20180706, *Angew. Chem.* **2018**, *130*, 14793; doi:10.1002/ange.201807506. invited submission for special issue celebrating 150 years of TUM.
265. Wu, W.-W.; Solis, D.; Walker, K.L.; Waymouth, R. M. "Synthesis, Characterization and Reactivity of Hydroxycyclopentadienyl Cobalt Complexes" *Organometallics*, **2018**, *37*, 3298-3302. doi: 10.1021/acs.organomet.8b00486.
266. Yang, Shanshan; Wu, Weimin; Malawi Brandon, Anja; Fan, Han-Qing; Receveur, Joseph P; Li, Yiran; Wang, Zhi-Yue; Fan, Rui; McClellan, Rebecca L; Gao, Shu-Hong; Ning, Daliang ; Phillips, Debra H; Peng, Bo-Yu ; Wang, Hongtao; Cai, Shen-Yang; Li, Ping; Cai, Wei-Wei; Ding, Ling-Yun; Yang, Jun; Zheng, Min; Ren, Jie; Zhang, Ya-Lei; Gao, Jie ; Xing, Defeng; Ren, Nan-Qi; Waymouth, Robert M; Zhou, Jizhong; Tao, Hu-Chun; Picard, Christine J; Benbow, M.Eric; Criddle, Craig S, "Ubiquity of polystyrene digestion and biodegradation within yellow mealworms, larvae of *Tenebrio molitor* Linnaeus (Coleoptera: Tenebrionidae)" *Chemosphere*, **2018**, *212*,262-271. doi: [10.1016/j.chemosphere.2018.08.078](https://doi.org/10.1016/j.chemosphere.2018.08.078).

267. McLoughlin, E. A.; Waldie, K. M.; Waymouth, R. M. "Protonation of a Cobalt Phenylazopyridine Complex at the Ligand Yields a Proton, Hydride, and Hydrogen Atom Transfer Reagent", *J. Am. Chem. Soc.*, **2018**, *140*, 13233-13241, doi:10.1021/jacs.8b06156.
268. Fernandes-Cunha, G. M.; McKinlay, C. J.; Vargas, J. R.; Jessen, H. J.; Waymouth, R. M.; Wender, P. A. "'Delivery of Inorganic Polyphosphate, the Forgotten Biopolymer, into Cells using an Amphipathic Oligocarbonate Transporter" *ACS Central Sci.*, **2018**, *4*, 1394-1402. doi:10.1021/acscentsci.8b00470. PMID: [PMC6202642](https://pubmed.ncbi.nlm.nih.gov/302642/)
269. Mack, J.; Walker, K.; Robinson, S.; Zare, R.N.; Sigman, M.; Waymouth, R. M.; Du Bois, J. "Mechanistic Study of Ruthenium-Catalyzed C–H Hydroxylation Reveals an Unexpected Pathway for Catalyst Arrest" *J. Am. Chem. Soc.*, **2019**, *141*, 972-980. doi: 10.1021/jacs.8b10950
270. McLoughlin, E. A.; Giles, L. J.; Waymouth, R. M.; Sarangi, R.; "X-ray Absorption Spectroscopy and Theoretical Investigation of Cyclopentadienyl Cobalt Compounds", *Inorg. Chem.*, **2019**, *58*, 1167-1176. doi:10.1021/acs.inorgchem.8b02475.
271. Haabeth, O. A. W.; Blake, T. R.; McKinlay, C. J.; Tveita, A.; Sallets, A.; Waymouth, R.M.; Wender, P. A.; Levy, R. "Local OX40L, CD80, and CD86 mRNA delivery kindles global anti-cancer immunity." *Cancer Res* **2019**, *79* (7), 1624-1634. DOI: 10.1158/0008-5472.CAN-18-2867.
272. Lin, B.; Hedrick, J. L.; Park, N. H.; Waymouth, R. M. "A Programmable High-Throughput Platform for the Rapid and Scalable Synthesis of Polyester and Polycarbonate Libraries" *J. Am. Chem. Soc.*, **2019**, *141*, 8921-8927. doi: 10.1021/jacs.9b02450
273. Benner, N. L.; McClellan, R. L.; Turlington, C. R.; Haabeth, O. A. W.; Waymouth, R. M.; Wender, P. A. "Oligo(serine ester) Charge-Altering Releasable Transporters: Organocatalytic Ring-Opening Polymerization and their use for In-vitro and In-Vivo mRNA Delivery", *J. Am. Chem. Soc.* **2019**, *141*, 8416-8421. doi: 10.1021/jacs.9b03154.
274. Matson, B. D.; McLoughlin, E. A.; Armstrong, K.; Waymouth, R. M.; Sarangi, R. "The Effect of Redox-Active Ligands on the Electrochemical Properties of Manganese Tricarbonyl Complexes" *Inorg. Chem.* **2019**, *58*, 7453-7465. doi: 10.1021/acs.inorchem.9b00652.
275. Clayman, N. E.; Morris, L. S.; LaPointe, A. M.; Keresztes, I.; Waymouth, R. M.; Coates, G. W. "Dual Catalysts for the Copolymerization of Epoxides and Lactones" *Chem. Commun.* **2019**, *55*, 6914-6917. doi: 10.1039/c9cc00493a.
276. Maikawa, C. L.; Sevit, A.; Lin, B.; Wallstrom, R. J.; Yu, A. C.; Waymouth, R. M.; Appel, E.A. "Molecular Architecture Drives Function of Self-Assembled Nanoparticles for Delivery of Small-molecule Cargo" *J. Polym. Sci., Polym. Chem.*, **2019**, *57*, 1322-1332. doi: 10.1002/pola.29393

Commentaries, Perspectives.

- Waymouth, R. M. "Comments on \"General Theory of Stationary Random Sequences with Applications to the Tacticity of Polymers,\" Bernard D. Coleman and Thomas G Fox, *J. Polym. Sci. A*, 1, 3183 (1963)" *J. Polym. Sci., Part A: Polym. Chem.* **1996**, *34*, 1633-1634.
- Waymouth, R. M. "Comments on "Living polymerization: Rationale for uniform terminology" by Darling et al. *J. Polym. Sci., Part A: Polym. Chem.* **2000**, *38*: (10) 1750-1751.
- Gomez, F. J.; Waymouth, R. M. "Catalysts Rise to the Challenge" *Science*, **2002**, *295*, 635-636.

Patents

- Waymouth, R.M. "Stereoregular Cyclopolymers" U.S. Patent, **5,104,956**, April 14, 1992.
- Waymouth, R.M. "Stereoregular Cyclopolymers and Method" U.S. Patent, **5,208,304**, May 4, 1993.
- Waymouth, R. M.; Coates, G.W.; Hauptman, E. "Thermoplastic Elastomeric Olefin Polymers, Method of Production and Catalysts Therefor" U.S. Patent, **5,594,080**, January 14, 1997.

4. Waymouth, R. M.; Coates, G.W.; Hauptman, E. "Thermoplastic Elastomeric Olefin Polymers " U.S. Patent, **5,969,070**, October 19, 1999.
5. Waymouth, R. M.; Kravchenko, R. L. Bendig, L. L.; Moore, E. J.; Myers, C.L.; Quan, R.W.; Ernst, A.B. "Ethylene Enhancement of Processes for Synthesis of High Melting Thermoplastic Elastomeric Alpha Olefin Polymers (PRE/EPE/EFFECTS) U.S. Patent **6,160,064**, December 12, 2000.
6. Waymouth, R. M.; Kravchenko, R. L.; Maciejewski Petoff, J. "High-Melting Polyolefin Copolymer Elastomers, Catalysts and Methods of Synthesis" U.S. Patent **6,169, 151 B1**, January 2, 2001.
7. Waymouth, R. M.; LeClerc, M. "Catalysts and Processes for the Synthesis of Alternating Ethylene/Alpha Olefin Copolymers and Isotactic Copolymers Thereof" U. S. Patent **6,184,317**, February 6, 2001.
8. Waymouth, R. M.; Maciejewski Petoff, J. L.; Kravchenko, R. L. "Ethylene Copolymers with Narrow Composition Distribution and High Melting Temperatures and Methods of Production Thereof U. S. Patent, **6,380,341 B1**. April 30, 2002
9. Waymouth, R. M.; LeClerc, M. "Catalysts for the Synthesis of Alternating Ethylene/Alpha Olefin Copolymers" U. S. Patent **6,380,125 B1**, April 30, 2002.
10. Waymouth, R. M.; Kravchenko, R. L.; Petoff, J. M.; Hung, J. "Metallocene Catalysts for the Synthesis of High-Melting Polyolefin Copolymer Elastomers" U. S. Patent **6,479,685 B2**, Nov. 12, 2002.
11. Waymouth, R. M.; Kravchenko, R. L.; Petoff, J. M.; Hung, J. "Metallocene Catalysts for the Synthesis of High-Melting Polyolefin Copolymer Elastomers" U. S. Patent **6,518,378 B2**, Feb. 11, 2003.
12. Hedrick, J. L.; Kilickiran, P.; Nyce, G. W.; Waymouth, R. M. "Catalytic Depolymerization of Polymers Containing Electrophilic Linkages Using Nucleophilic Reagents" U. S. Patent, **6,911,546 B2**, June 28, 2005.
13. Hedrick, J. L.; Kilickiran, P.; Nyce, G. W.; Waymouth, R. M. "Catalytic Depolymerization of Polymers Containing Electrophilic Linkages Using Nucleophilic Reagents" U. S. Patent, **6,916, 936 B2**, July 12, 2005.
14. Hedrick, J. L.; Nyce, G. W.; Waymouth, R. M. "Heteroatom-Stabilized Carbenes and Precursors Thereto as Depolymerization Catalysts" U. S. Patent, **7,053,221 B2**, May 30, 2006.
15. Hedrick, J. L.; Nyce, G. W.; Waymouth, R. M. "Catalytic Depolymerization of Polymers Containing Electrophilic Linkages Using Nucleophilic Reagents" U. S. Patent, **7,544,800 B2**, June 9, 2009.
16. Cooley, C.; Hedrick, J. L.; Kiesewetter, M.; Nederberg, F.; Trantow, B.; Waymouth, R. M.; Wender, P.A. "Cyclic carbonate monomers and oligocarbonate molecular transporters" U.S. Patent, **US 7,939,621 B2**, May 10, 2011.
17. Hedrick, J. L.; Appel, E.; Miller, R. D., Waymouth, R. M. "Methods for Making Multi-branched Polymers" US Patent **8,013,065**, Sept. 6, 2011.
18. Fukushima, K.; Hedrick, J. L.; Kim, S.-H.; Waymouth, R. M. "Hydrogel Compositions and Methods of Preparation Thereof" US Patent **8,263,715 B2**, September 11, 2012.
19. Hedrick, J. L.; Pratt, R. C.; Waymouth, R. M. "Catalytic depolymerization of polymers containing electrophilic linkages using nucleophilic reagents" US Patent **8,309,618 B2**, Nov. 13, 2012.
20. Hedrick, J. L.; Pratt, R. C.; Waymouth, R. M. "Catalytic polymerization of polymers containing electrophilic linkages using nucleophilic reagents" US Patent **8,367,796 B2**, Feb. 5, 2013.
21. Hedrick, J. L.; Pratt, R. C.; Waymouth, R. M. "Catalytic depolymerization of polymers containing electrophilic linkages using nucleophilic reagents" US Patent **8,492,504 B2**, July 23, 2013.

22. Fukushima, K.; Hedrick, J. L.; Kim, S.-H.; Waymouth, R. M. "Hydrogel Compositions and Methods of Preparation Thereof" US Patent 8,536,291 B2, September 17, 2013.
23. Hedrick, J. L.; Pratt, R.C.; Waymouth, R. M. "Catalytic Polymerization of Polymers Containing Electrophilic Linkages using Nucleophilic Reagents" US Patent 8,546,513 B2, October 1, 2013.
24. Olsson, J. V.; Chung, Y-L.; Li, R. J.; Waymouth, R. M.; Sattely, E.; Billington, S.; Frank, C. W. "Lignin Poly(lactic Acid) Copolymers" International Patent Appl. **WO 2014/042851 A1**, 20 March 2014.
25. Waymouth, R. M.; Barcan, G.; Zhang, X. "Dithiolane Carbonate Monomers and Polymers Thereof" US Patent **9,556,308 B1**, 31 January, 2017.
26. Olsson, J. V.; Chung, Y-L.; Li, R. J.; Waymouth, R. M.; Sattely, E.; Billington, S.; Frank, C. W. "Lignin Poly(lactic Acid) Copolymers" US Patent. **9,567,432 B2**, 14 February 2017.
27. Cooley, C. B.; Stanzl, E. G.; Waymouth, R. M.; Wender, P. A. "Amphiphathic Co-Oligomers for the Delivery of siRNA" US Patent **9,902,957**, February 27, 2018.
28. McKinlay, C. J.; Wender, P. A.; Waymouth, R. M. "Cell-Penetrating, Guanidinium-Rich Oligophosphoesters for Drug and Probe Delivery" PCT Int. Patent Appl. **WO 2017/083637 A1**, 18 May 2017.
29. Waymouth, R. M.; Wender, P.; Vargas, J. R.; Blake, T. R.; McKinlay, C.; Levy, R.; Haabeth, O.A.W.; Benner, N.; Near, K. "Immolative Cell-Penetrating Complexes for Nucleic Acid Delivery" US Patent Application US 2018/0028688 A1, Feb. 1, 2018.
30. Waymouth, R. M.; Barcan, G.; Zhang, X. "Dithiolane Carbonate Monomers and Polymers Thereof" US Patent **9,944,630 B1**, 17 April, 2018.

Preprints, extended abstracts.

1. Mogstad, A-L.; Resconi, L.; Waymouth, R. M. "Chain Transfer to Aluminum: Molecular Weight Control in the Cyclopolymerization of 1,5-Hexadiene" Polym. Prepr. **1991**, 32(1), 160-161.
2. Resconi, L.; Coates, G. W.; Mogstad, A-L.; Banovetz, J. P.; Stein, K.; Waymouth, R.M. "Stereospecific Polymerization with Group 4 Metallocenes" Polym. Prepr. **1991**, 32(1), 471-472.
3. Coates, G. W.; Kesti, M. R.; Mogstad, A. L.; Waymouth, R. M. "Enantioselective cyclopolymerization: a new route to main-chain chiral polymers" Polym. Prepr. **1992**, 33(1), 1230.
4. Mogstad, A.; Kesti, M. R.; Coates, G. W.; Waymouth, R. M. "Synthesis of functionalized poly(.alpha.-olefins) via Ziegler-Natta catalysis: homo- and copolymers" Polym. Prepr. **1993**, 34(1), 211-12.
5. Stein, K. M.; Kesti, M. R.; Coates, G. W.; Waymouth, R. "The synthesis of functionalized poly(.alpha.-olefins) via cationic Group IV metallocenes" Polym. Prepr. **1994**, 35(1), 480-1.
6. Coates, G. W.; Mogstad, A. L.; Hauptman, E.; Bruce, M. D.; Waymouth, R. M. "Oscillating catalysts for propylene polymerization" Polym. Prepr. **1995**, 36(1), 545.
7. Coates, G. W.; Bruce, M. D.; Waymouth, R. M. "Dynamic behavior of aryl indene catalysts for propylene polymerization" Polym. Prepr. **1996**, 37(1), 337-8.
8. Coates, G. W.; Hauptman, E.; Bruce, M. D.; Waymouth, R. M. "Temporal chirality: dynamic stereocontrol in the polymerization of propylene" Polym. Prepr. **1996**, 37(2), 472-473.
9. McKnight, A. L.; Straus, D. A.; Masood, M. A.; Waymouth, R. M. "Propylene polymerization with Cp-amido metal complexes: stereoselectivity and regioselectivity" Polym. Prepr. **1996**, 37(2), 474.
10. Jamison, G. M.; Loy, D. A.; Opperman, K. A.; Beach, J. V.; Waymouth, R. M. "New hybrid polysilane/polysiloxane nanocomposites" Polym. Prepr. **1996**, 37(2), 297-298.
11. Kravchenko, R. L.; Waymouth, R. M.; Masood, M. A. "Ligand effects in propylene and ethylene polymerization with 2-arylidene zirconocene catalysts" Polym. Prepr. **1996**, 37(2), 475.

12. Schulz, D. N.; Datta, S.; Waymouth, R. M. "Use of protecting groups in polymerization" Polym. Mater. Sci. Eng **1997**, 76, 3-5.
13. Stehling, U. M.; McKnight, A. L.; Stein, K. M.; Waymouth, R. M. "Stereospecific polymerization of functionalized olefins with metallocene catalysts" Polym. Mater. Sci. Eng. **1997**, 76, 244-245.
14. Cicero, R. L.; Wagner, P.; Linford, M.; Hawker, C. J.; Waymouth, R. M.; Chidsey, C. E. D. "Functionalization of alkyl monolayers on surfaces with diverse amines: photochemical chlorosulfonation followed by sulfonamide formation" Polym. Prepr. **1997**, 38(1), 904-905.
15. Hawker, C. J.; Hedrick, J. L.; Malmstrom, E.; Trollsas, M.; Waymouth, R. M.; Stehling, U. M. "Versatile synthesis of block copolymers by solvent-free "living" radical procedures: functionalized unimolecular and polymeric initiators" Polym. Prepr. **1997**, 38(2), 412-413.
16. Petoff, J. M.; Leclerc, M.; Waymouth, R. M. "Control of sequence distribution in olefin polymerization" Polym. Prepr. **1997**, 38(2), 492.
17. Petoff, J. M.; Waymouth, R. M. "Ansa-Metallocene Analogs as Models for the Production of Elastomeric Polypropylene by 2-Arylindenyl Zirconocenes" Polym. Prepr. **1998**, 39(1), 212.
18. Lin, S.; Waymouth, R. M. "Regioirregular propylene insertion in polypropylenes synthesized with unbridged bis(2-aryl)indenyl zirconium dichloride catalysts: implications on activity" Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **1998**, 39, 439-440.
19. Dankova, M.; Maciejewski Petoff, J.; Waymouth, R. M. "Bridged Metallocenes as Models in Propylene Polymerization and Ethylene/Propylene Copolymerization Studies" Polym. Prepr. **1999**, 40(2), 862.
19. Fox, P. A.; Waymouth, R. M.; Hawker, C. J. "The Synthesis of Poly(Propylene-Graft-Polystyrene) From a 'Living' Free-Radical Macroinitiator" Polym. Prepr. **1999**, 40(2), 872.
20. Wiyatno, W.; Fox, P. A.; Fuller, G. G.; Hawker, C. J.; Waymouth, R. M. "The synthesis of well-defined long chain branched polyolefins" Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **2000**, 41(1), 85-86.
21. Waymouth, R. M.; Lin, S. "Kinetics of Propylene Polymerization Using Bis(2-Phenylindenyl)zirconium Dichloride" Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **2000**, 41(2), 1922-1923.
22. Waymouth, R. M.; Fan, W-H.; LeClerc, M. "Sequence Control of Ethylene- α -Olefin Copolymers with Bridged Metallocenes" Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **2000**, 41(2), 1941-1942.
23. Wiyatno, W.; Pople, J.; Gast, A. P.; Waymouth, R. M.; Fuller, G. G. "Rheo-optics and X-ray scattering study of elastomeric polypropylene." Polym. Mater. Sci. Eng. **2001**, 85 273-274.
24. Harth, Eva; Fan, Wendy; van Horn, Brooke; Waymouth, Robert M.; Hawker, Craig J. "New routes to functionalized polymers: elucidation of a novel strategy for chain end functionalization and the development of improved third generation nitroxides." Polym. Mater. Sci. Eng. **2001**, 84 62-63.
25. Schoenherr, Holger; Waymouth, Robert M.; Hawker, Craig J.; Frank, Curtis W. "Real time studies of polymer crystallization in the confinement of ultrathin films." Polym. Mater. Sci. Eng. **2001**, 84 453-454.
26. Waymouth, Robert M.; Wilmes, Gregg M.; Finze, Maik; Reybuck, Sarah E.; Lin, Shirley. "Conformationally-dynamic metallocenes: Hypersensitive systems for modulating stereochemistry." Polym. Mater. Sci. Eng. **2002**, 87 48-49.
27. Schoenherr, Holger; Waymouth, Robert M.; Frank, Curtis W. "Nucleation and crystallization of low-crystallinity polypropylene followed in situ by hot stage atomic force microscopy." Polym. Mater. Sci. Eng. **2003**, 89 671.
28. Csihony, S. ; Nyce, G. W.; Sentman, A. C.; Waymouth, R. M.; Hedrick, J. L. "Mechanistic Studies of the Polymerization and Transesterification with Imidazole Based Carbenes" Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) **2004**, 45, 319-320.

29. Sentman, A. C.; Csihony, S.; Nyce, G. W.; Waymouth, R. M.; Hedrick, J. L. "Silver (I) -carbene complexes / ionic liquids: novel n-heterocyclic carbene delivery agents for living polymerization" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2004**, *45*, 299-300.
30. Dove, A. P.; Mahanthappa, M.; Waymouth, R. M. "Effect of co-catalyst on the polymerization of α -olefin monomers by (cyclopentadienyl) (nitroxide)titanium(IV) complexes." *Polym. Mater. Sci. Eng.* **2004**, *91*, 99.
31. Dove, A. P.; Sentman, A. C.; Culkin, D. A.; Hedrick, J. L.; Waymouth, R. M. "Use of N-Heterocyclic Carbene Compounds for the Production of Degradable Polymeric Materials" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2005**, *46*, 347.
32. Culkin, D. A.; Csihony, S.; Jeong, W.; Sentman, A. C.; Nyce, G. W.; Dove, A. P.; Pratt, R.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbenes: Organocatalysts for Ring-Opening Polymerization of Lactide" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2005**, *46*, 710-711
33. Culkin, D. A.; Csihony, S.; Sentman, A. C.; Dove, A. P.; Hedrick, J. L.; Waymouth, R. M. "Alcohol Adducts of N-Heterocyclic Carbenes as Single-Component Catalyst/Initiators for Ring-Opening Polymerization of Lactide" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2005**, *46*, 832-833.
34. Hedrick, J. L.; Waymouth, R.; Sentman, A.; Nyce, G. W.; Culkin, D.; Dove, A. P.; Pratt, R. "Organic Catalysis: A New Strategy for Living Polymerization" *PMSE Preprints* **2005**, *92*, 179.
35. Pratt, R. C.; Dove, A. P.; Lohmeijer, B. G. G.; Culkin, D. A.; Waymouth, R. M.; Hedrick, J. L. "Extending the Reactivity of N-Heterocyclic Carbenes to Polymerization of Functional and Biomimetic Monomers" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2005**, *46*, 902.
36. Jeong, W.; Culkin, D. A.; Coulembier, O.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbene Organocatalysts for the Preparation of Biocompatible and Biodegradable Polymers" *PMSE Preprints* **2006**, *95*, 1026-1027.
37. Nederberg, F.; Lohmeijer, B. G. G.; Pratt, R. C.; Mason, A.; Eade, G.; Choi, J.; Balsara, N. P.; Waymouth, R. M.; Hedrick, J. L. "Multifunctional Initiators Provide Recognition Sites at the Block Junction of Block Copolymers" *PMSE Preprints* **2006**, *95*, 673-674.
38. Choi, J.; Lohmeijer, B. G. G.; Hermans, T. M.; Kim, H.-C.; Dubois, G.; Pratt, R. C.; Nederberg, F.; Miller, R. D.; Waymouth, R. M.; Hedrick, J. L. "Monolayerd Organosilicate Nanostructures: Micelle-Templating Approaches" *PMSE Preprints* **2006**, *95*, 377-378.
39. Lohmeijer, B. G. G.; Pratt, R. C.; Li, H.; Dove, A. P.; Nederberg, F.; Mason, A. F.; Eade, G.; Choi, J.; Waymouth, R. M.; Wade, C. G.; Hedrick, J. L. "Organocatalytic Ring Opening Polymerization: Activation through Hydrogen Bonding" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 586-587.
40. Kamber, N. E.; Kiesewetter, M. K.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbenes as Nucleophilic Catalysts for the Ring Opening Polymerization of E-Caprolactone" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 570-571.
41. Pratt, R. C.; Lohmeijer, B. G. G.; Mason, A.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Ring-Opening Polymerizations of Morpholine-2,6-Diones: A Route to Functionalized Poly(Lactide)S and Pseudopeptides" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 101-102.
42. Mason, A. F.; Lohmeijer, B. G. G.; Li, H.; Pratt, R. C.; Liao, Q.; Frank, C. W.; Kingsbury, K.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Polymerization of Ethylene Oxide and the Controlled Synthesis of Peo-Based Hydrogel Networks" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 99-100.

43. Pratt, R. C.; Long, D. A.; Lohmeijer, B. G. G.; Lundberg, P. N. P.; Waymouth, R. M.; Hedrick, J. L. "Development of Supramolecular Catalysts for Accelerated Ring-Opening Polymerization of Lactide" *PMSE Preprints* **2006**, *94*, 178-179.
44. Lohmeijer, B. G. G.; Pratt, R. C.; Hermans, T. M.; Dove, A. P.; Mason, A. F.; Choi, J.; Waymouth, R. M.; Balsara, N. P.; Hedrick, J. L. "Diblock Copolymers Made to Order: Supramolecular Interactions at the Block Junction" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 509-510.
45. Pratt, R. C.; Long, D. A.; Lohmeijer, B. G. G.; Waymouth, R. M.; Hedrick, J. L. "Guanidine and Amidine Catalysts for Ring-Opening Polymerization of Cyclic Esters" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2006**, *47*, 151-152.
46. Pratt, R. C.; Nederberg, F.; Lohmeijer, B. G. G.; Waymouth, R. M.; Hedrick, J. L. "Fully Degradable Functionalized Polymers: A Versatile Approach Using Ring-Opening Polymerization of Cyclic Carbonates" *PMSE Preprints* **2007**, *96*, 204-205.
47. Choi, J.; Lohmeijer, B. G. G.; Pratt, R. C.; Dubois, G.; Hermans, T. M.; Frommer, J.; Nederberg, F.; Kim, H. C.; Waymouth, R. M.; Hedrick, J. L. "Expanding the Scope of Nanostructures Possible from Block Copolymers: Role of Selective Deposition Solvent" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 884-885.
48. Leibfarth, F. A.; Lohmeijer, B. G. G.; Nederberg, F.; Pratt, R. C.; Logan, J. W.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Ring Opening Polymerization of Cyclic Monomers: Mechanistic and Synthetic Studies" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 984-985.
49. Scholten, M. D.; Hedrick, J. L.; Waymouth, R. M. "Group Transfer Polymerization of Acrylates and Methacrylates Using N-Heterocyclic Carbene Catalysts" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 167-168.
50. Waymouth, R. M.; Hedrick, J. L.; Nederberg, F.; Pratt, R. C.; Lohmeijer, B. G. G.; Culkin, D. A.; Coulembier, O.; Kamber, N. E.; Jeong, W.; Kiesewetter, M. K.; Shin, E. J. "Polyesters from Renewable Resources: Organocatalytic Strategies for Controlled Polymerization Reactions" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 812-813.
51. Zhang, L.; Nederberg, F.; Pratt, R. C.; Waymouth, R. M.; Hedrick, J. L.; Wade, C. G. "Phosphazene Bases for the Organocatalytic Living Ring-Opening Polymerization of Cyclic Esters" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 875-876.
52. Nederberg, F.; Pratt, R. C.; Mason, A. F.; Waymouth, R. M.; Hedrick, J. L. "An Organocatalytic Route to Functional and Biodegradable Hydrogels" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 907-908.
53. Pratt, R. C.; Nederberg, F.; Waymouth, R. M.; Hedrick, J. L. "Functionalizing Polyesters and Polycarbonates: Covalent Tagging of Alcohols for Ring-Opening Polymerization" *Polymer Preprints (American Chemical Society, Division of Polymer Chemistry)* **2007**, *48*, 1005-1006.
54. Jeong, W.; Shin, E. J.; Culkin, D. A.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbene-Mediated Zwitterionic Polymerization: An Expedient Organocatalytic Route to Cyclic Polyesters" *PMSE Preprints* **2007**, *97*, 82-83.
55. Kim, S. H.; Nederberg, F.; Pratt, R. C.; Choi, J.; Zhang, L.; Wade, C. G.; Waymouth, R. M.; Hedrick, J. L. "Effect of Stereochemistry and Stereocomplexation of Polylactides on Organosilicate Nanostructure" *PMSE Preprints* **2007**, *97*, 221-222.
56. Jones, A. E.; Shin, E. J.; Waymouth, R. M. "Stereocomplex Interactions in Enantiomeric Cyclic and Linear Polylactides" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2008**, *49*, 1149-1150.

57. Kester, B. S.; Logan, J. W.; Nederberg, F.; Pratt, R. C.; Wade, C. G.; Waymouth, R. M.; Hedrick, J. L. "Living Ring-Opening Polymerization of Cyclic Esters with Phosphazene Organocatalysts" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2008**, *49*, 1132-1133.
58. Fukushima, K.; Pratt, R. C.; Nederberg, F.; Waymouth, R. M.; Hedrick, J. L. "Organocatalytic Ring-Opening Polymerization Approach to Fully Degradable Amphiphilic Copolymers" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2008**, *49*, 356.
59. Waymouth, R. M.; Hedrick, J. L.; Jeong, W.; Shin, E.-J.; Culkin, D. A.; Csihony, S. "N-heterocyclic carbenes: catalysts for controlled polymerization reactions" *PMSE Prepr.* **2009**, *100*, 631.
60. Tan, J. P. K.; Nederberg, F.; Appel, E. A.; Kim, S. H.; Fukushima, K.; Sly, J.; Miller, R. D.; Yang, Y.-Y.; Waymouth, R. M.; Hedrick, J. L. "Self-assembled stereocomplexes formed from mikto-arm PEG-b-PLA for controlled delivery of anticancer drug" *PMSE Prepr.* **2009**, *100*, 514-515.
61. Shin, E. J.; Jeong, W.; Culkin, D. A.; Hedrick, J. L.; Waymouth, R. M. "Kinetic and mechanistic studies of N-heterocyclic carbene-mediated zwitterionic polymerization of cyclic esters" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2009**, *50*, 22-23.
62. Hedrick, J. L.; Waymouth, R. M.; Nederberg, F.; Pratt, R.; Lohmeier, B.; Jeong, W.; Shin, E.-J.; Kamber, N.; Culkin, D.; Csihony, S. "Organocatalytic polymerization: a versatile strategy for polymer synthesis" *PMSE Prepr.* **2009**, *100*, 635.
63. Fukushima, K.; Nederberg, F.; Kim, S. H.; Tan, J. P. K.; Yang, Y. Y.; Waymouth, R. M.; Hedrick, J. L. "Mixed micelle formation through stereocomplexation between enantiomeric poly(lactide) block copolymers" *PMSE Prepr.* **2009**, *100*, 184-185.
64. Jeong, W.; Hedrick, J. L.; Waymouth, R. M. "Zwitterionic polymerization of cyclic esters using N-heterocyclic carbenes: an expedient route to cyclic polyesters" *PMSE Prepr.* **2009**, *101*, 1154-1155.
65. Brown, H. A.; Shin, E. J.; Kamber, N. E.; Jeong, W.; Gonzalez, S.; Hedrick, J. L.; Waymouth, R. M. "N-Heterocyclic Carbene Mediated Synthesis of Poly(ϵ -caprolactone): Synthesis and Crystallization Kinetics by Differential Scanning Calorimetry" *Polym. Prepr.* **2010**, *51(1)*, 535-536.
66. Shin, E. J.; Jeong, W.; Brown, H. A.; Koo, B. J.; Hedrick, J. L.; Waymouth, R. M. "Crystallization of Polyesters Generated by N-Heterocyclic Carbene Mediated Zwitterionic Polymerization of Cyclic Esters" *Polym. Prepr.* **2010**, *51(1)*, 92-93.
67. Fukushima, K.; Coulembier, O.; Lecuyer, J. M.; McNeil, M. A.; Dubois, P.; Waymouth, R. M.; Horn, H. W.; Rice, J. E.; Hedrick, J. L. "Closing the Loop on Recycling: Organocatalytic Depolymerization of Poly(ethylene terephthalate)" *PMSE Preprint*, **2010**, *102*, 111.
68. Waymouth, R. M.; Hedrick, J. L.; Kiesewetter, M. K.; Son, K.; Kiesewetter, E. "New catalysts for monomer and polymer synthesis" *Polym. Prepr.* **2010**, *51*, 386-387.
69. Kiesewetter, E. T.; Son, K.-S.; Waymouth, R. M. "Stereoselective polymerization and selective oligomerization with coordination catalysts" *Polym. Prepr.* **2011**, *52(1)*, 246.
70. Brown, H. A.; Shin, E. J.; Mork, A. J.; Stukenbroeker, T. S.; Hedrick, J. L.; Waymouth, R. M. "N-heterocyclic carbene mediated synthesis of cyclic gradient polymers" *PMSE Prepr.* **2012**, 622-623