




Robert Waymouth

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

 Curriculum Vitae available Online

CONTACT INFORMATION

• Administrative Contact

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Bio

BIO

Robert Eckles Swain Professor in Chemistry Robert Waymouth investigates new catalytic strategies to create useful new molecules, including bioactive polymers, synthetic fuels, and sustainable plastics. In one such breakthrough, Professor Waymouth and Professor Wender developed a new class of gene delivery agents.

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. In collaboration with Dr. James Hedrick of IBM, we have developed a platform of highly active organic catalysts and continuous flow reactors that provide access to polymer architectures that are difficult to access by conventional approaches.

The Waymouth group has devised selective organocatalytic strategies for the synthesis of functional degradable polymers and oligomers that function as "molecular transporters" to deliver genes, drugs and probes into cells and live animals. These advances led to the joint discovery with the Wender group of a general, safe, and remarkably effective concept for RNA delivery based on a new class of synthetic cationic materials, Charge-Altering Releasable Transporters (CARTs). This technology has been shown to be effective for mRNA based cancer vaccines.

ACADEMIC APPOINTMENTS

- Professor, Chemistry
- Professor (By courtesy), Chemical Engineering
- Member, Bio-X

- Faculty Fellow, Sarafan ChEM-H
- Member, Stanford Cancer Institute
- 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

- Fellow of the American Association for the Advancement of Science, American Association of the Advancement of Science (2024)
- Herman F. Mark Award, American Chemical Society (2023)
- ACS Award in Polymer Chemistry, American Chemical Society (2022)
- Alexander von Humboldt Stiftung Award, Alexander von Humboldt Foundation (2022)
- 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 - 2017)
- International Advisory Board Member, International Symposium on Homogeneous Catalysis (2008 - present)
- Editorial Board Member, Journal of Polymer Science, Chemistry (2000 - present)

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

- Colin J. McKinlay, Paul A. Wender, Robert M. Waymouth. "United States Patent 10,654,875 B2 Cell-Penetrating, Guanidinium-Rich Oligophosphoesters for Drug and Probe Delivery", Leland Stanford Junior University, May 19, 2020

- Christina Cooley, Erika Stanzl, Robert M. Waymouth, Paul A. Wender. "United States Patent 9,902,957 Amphipathic Co-Oligomers for the Delivery of siRNA", Leland Stanford Junior University, Feb 27, 2018
- Robert Waymouth, Gregg Barcan, Xiangyi Zhang. "United States Patent 9556308 B1 Dithiolane Carbonate Monomers and Polymers Thereof", Leland Stanford Junior University, Jan 31, 2017
- 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
- James L. Hedrick, Russell C. Pratt, Robert M. Waymouth. "United States Patent 8,492,504 B2 Catalytic depolymerization of polymers containing electrophilic linkages using nucleophilic reagents", Leland Stanford Junior University, IBM, Jul 23, 0013

LINKS

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

Teaching

COURSES

2023-24

- Advanced Inorganic Chemistry: CHEM 255 (Aut)
- Synthesis Laboratory: CHEM 126 (Win)

2022-23

- Synthesis Laboratory: CHEM 126 (Win)

2021-22

- Chemical Principles I: CHEM 31A (Aut)

2020-21

- Chemical Principles I: CHEM 31A (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jasper Ainsworth, Sam Bunke, Yuelang Chen, Remi Dado, Madison Driskill, Matias Horst, Zhijian Li, Dean Miller, Harrison Rahn, Shradha Sapru, Mokedlawit Setegne, Yuran Shi, Jiuzhi Sun, Shoshana Williams, Cristian Woroch

Postdoctoral Faculty Sponsor

Mahmoud Abdelrazik, Paul Hurst, Niklas Warlin

Doctoral Dissertation Advisor (AC)

Josh Arens, Julia Dressel, David Dumas, Yuan Jia, Sam Khasnavis, Joshua Lui, Daniel Marron, Jia Zhang

Doctoral Dissertation Co-Advisor (AC)

Anna Makar-Limanov

Publications

PUBLICATIONS

- **Ethane-dependent synthesis of polyhydroxyalkanoates by the obligate methanotroph *Methylocystis parvus* OBBP** *CHEMICAL ENGINEERING JOURNAL*
Myung, J., Flanagan, J. A., Waymouth, R. M., Criddle, C. S.
2024; 483
- **Insights into the Palladium(II)-Catalyzed Wacker-Type Oxidation of Styrene with Hydrogen Peroxide and tert-Butyl Hydroperoxide.** *ACS catalysis*
Mu, M., Walker, K. L., Sánchez-Sanz, G., Waymouth, R. M., Trujillo, C., Muldoon, M. J., García-Melchor, M.
2024; 14 (3): 1567-1574

- **Ring-Opening Polymerization of Cyclic Esters and Carbonates with (Thio)urea/Cyclopropenimine Organocatalytic Systems.** *ACS macro letters*
Morodo, R., Dumas, D. M., Zhang, J., Lui, K. H., Hurst, P. J., Bosio, R., Campos, L. M., Park, N. H., Waymouth, R. M., Hedrick, J. L.
2024: 181-188
- **Coordination-Induced Bond Weakening and Electrocatalytic Proton-Coupled Electron Transfer of a Ruthenium Verdazyl Complex.** *Inorganic chemistry*
Galvin, C. M., Marron, D. P., Dressel, J. M., Waymouth, R. M.
2023
- **The STEMentors Program: Promoting the Academic Readiness and Community Building of Students within General Chemistry** *JOURNAL OF CHEMICAL EDUCATION*
Deweese, D., Nardo, J., Applebaum, I., Sundrani, S., Zur, A., Waymouth, R. M., Poehlmann, J., Salehi, S.
2023; 101 (1): 88-96
- **Contrasting Roles of Counterions in Anionic Ring-Opening Polymerization Mediated by Heterocycle Organocatalysts** *ACS CATALYSIS*
Zhang, J., Lui, K., Jadrich, C. N., Jia, Y., Arrechea, P. L., Hedrick, J. L., Waymouth, R. M.
2023; 13 (24): 16097-16104
- **Charge-altering releasable transporters enhance mRNA delivery in vitro and exhibit in vivo tropism.** *Nature communications*
Li, Z., Amaya, L., Pi, R., Wang, S. K., Ranjan, A., Waymouth, R. M., Blish, C. A., Chang, H. Y., Wender, P. A.
2023; 14 (1): 6983
- **Cyclopentadienone Iridium Bipyridyl Complexes: Acid-Stable Transfer Hydrogenation Catalysts** *ORGANOMETALLICS*
Marron, D. P., Galvin, C. M., Waymouth, R. M.
2023
- **Lysine-Derived Charge-Altering Releasable Transporters: Targeted Delivery of mRNA and siRNA to the Lungs.** *Bioconjugate chemistry*
Blake, T. R., Haabeth, O. A., Sallets, A., McClellan, R. L., Del Castillo, T. J., Vilches-Moure, J. G., Ho, W. C., Wender, P. A., Levy, R., Waymouth, R. M.
2023
- **Mechanism-Guided Design of Robust Palladium Catalysts for Selective Aerobic Oxidation of Polyols.** *Journal of the American Chemical Society*
Ramsay-Burrough, S., Marron, D. P., Armstrong, K. C., Del Castillo, T. J., Zare, R. N., Waymouth, R. M.
2023
- **The legacy of Robert H. Grubbs: Scientific brilliance with humble empathy** *CHEM*
Suslick, B. A., Grubbs, R. B., Waymouth, R. M., Moore, J. S.
2022; 8 (10): 2562-2570
- **Fingolimod-Conjugated Charge-Altering Releasable Transporters Efficiently and Specifically Deliver mRNA to Lymphocytes In Vivo and In Vitro.** *Biomacromolecules*
Testa, S., Haabeth, O. A., Blake, T. R., Del Castillo, T. J., Czerwinski, D. K., Rajapaksa, R., Wender, P. A., Waymouth, R. M., Levy, R.
2022
- **A Cation-Dependent Dual Activation Motif for Anionic Ring-Opening Polymerization of Cyclic Esters.** *Journal of the American Chemical Society*
Jadrich, C. N., Pane, V. E., Lin, B., Jones, G. O., Hedrick, J. L., Park, N. H., Waymouth, R. M.
2022
- **Potassium Trimethylsilylanolate-Promoted, Anhydrous Suzuki-Miyaura Cross-Coupling Reaction Proceeds via the "Boronate Mechanism": Evidence for the Alternative Fork in the Trail.** *Journal of the American Chemical Society*
Delaney, C. P., Marron, D. P., Shved, A. S., Zare, R. N., Waymouth, R. M., Denmark, S. E.
2022
- **Photocleavable Regenerative Network Materials with Exceptional and Repeatable Viscoelastic Manipulability.** *Advanced science (Weinheim, Baden-Wuerttemberg, Germany)*
Oka, M., Takagi, H., Miyazawa, T., Waymouth, R. M., Honda, S.
2021: e2101143
- **An mRNA SARS-CoV-2 Vaccine Employing Charge-Altering Releasable Transporters with a TLR-9 Agonist Induces Neutralizing Antibodies and T Cell Memory.** *ACS central science*
Haabeth, O. A., Lohmeyer, J. J., Sallets, A., Blake, T. R., Sagiv-Barfi, I., Czerwinski, D. K., McCarthy, B., Powell, A. E., Wender, P. A., Waymouth, R. M., Levy, R.

2021; 7 (7): 1191-1204

- **Towards a Biomanufacturing on Mars** *FRONTIERS IN ASTRONOMY AND SPACE SCIENCES*
Berliner, A. J., Hilzinger, J. M., Abel, A. J., McNulty, M. J., Makrygiorgos, G., Aversch, N. H., Sen Gupta, S., Benvenuti, A., Caddell, D. F., Cestellos-Blanco, S., Doloman, A., Friedline, S., Ho, et al
2021; 8
- **Electroreduction of Benzaldehyde with a Metal-Ligand Bifunctional Hydroxycyclopentadienyl Molybdenum(II) Hydride** *ORGANOMETALLICS*
Armstrong, K. C., Waymouth, R. M.
2020; 39 (24): 4415–19
- **Condensing water vapor to droplets generates hydrogen peroxide.** *Proceedings of the National Academy of Sciences of the United States of America*
Lee, J. K., Han, H. S., Chaikasetsin, S., Marron, D. P., Waymouth, R. M., Prinz, F. B., Zare, R. N.
2020
- **Electron-Rich Phenoxy Mediators Improve Thermodynamic Performance of Electrocatalytic Alcohol Oxidation with an Iridium Pincer Complex.** *Journal of the American Chemical Society*
Galvin, C. M., Waymouth, R. M.
2020
- **Ultrafast and Controlled Ring-Opening Polymerization with Sterically Hindered Strong Bases** *MACROMOLECULES*
Lin, B., Jadrlich, C. N., Pane, V. E., Arrechea, P. L., Erdmann, T., Dausse, C., Hedrick, J. L., Park, N. H., Waymouth, R. M.
2020; 53 (20): 9000–9007
- **Electrochemically Regenerable Hydrogen Atom Acceptors: Mediators in Electrocatalytic Alcohol Oxidation Reactions** *ACS CATALYSIS*
McLoughlin, E. A., Armstrong, K. C., Waymouth, R. M.
2020; 10 (19): 11654–62
- **Mechanistic Study of Isotactic Poly(propylene oxide) Synthesis using a Tethered Bimetallic Chromium Salen Catalyst.** *ACS catalysis*
Lipinski, B. M., Walker, K. L., Clayman, N. E., Morris, L. S., Jugovic, T. M., Roessler, A. G., Getzler, Y. D., MacMillan, S. N., Zare, R. N., Zimmerman, P. M., Waymouth, R. M., Coates, G. W.
2020; 10 (15): 8960-8967
- **Synthesis and mechanistic investigations of pH-responsive cationic poly(aminoester)s** *CHEMICAL SCIENCE*
Blake, T. R., Ho, W. C., Turlington, C. R., Zang, X., Huttner, M. A., Wender, P. A., Waymouth, R. M.
2020; 11 (11): 2951–66
- **Synthesis and mechanistic investigations of pH-responsive cationic poly(aminoester)s.** *Chemical science*
Blake, T. R., Ho, W. C., Turlington, C. R., Zang, X., Huttner, M. A., Wender, P. A., Waymouth, R. M.
2020; 11 (11): 2951-2966
- **Reversible RNA acylation for control of CRISPR-Cas9 gene editing** *CHEMICAL SCIENCE*
Habibian, M., McKinlay, C., Blake, T. R., Kietrys, A. M., Waymouth, R. M., Wender, P. A., Kool, E. T.
2020; 11 (4): 1011–16
- **Charge-altering releasable transporters enable phenotypic manipulation of natural killer cells for cancer immunotherapy.** *Blood advances*
Wilk, A. J., Weidenbacher, N. L., Vergara, R. n., Haabeth, O. A., Levy, R. n., Waymouth, R. M., Wender, P. A., Blish, C. A.
2020; 4 (17): 4244–55
- **Electrocatalytic Alcohol Oxidation with Iron-Based Acceptorless Alcohol Dehydrogenation Catalyst.** *Inorganic chemistry*
McLoughlin, E. A., Matson, B. D., Sarangi, R., Waymouth, R. M.
2019
- **Reversible RNA acylation for control of CRISPR-Cas9 gene editing.** *Chemical science*
Habibian, M., McKinlay, C., Blake, T. R., Kietrys, A. M., Waymouth, R. M., Wender, P. A., Kool, E. T.
2019; 11 (4): 1011-1016
- **Spontaneous generation of hydrogen peroxide from aqueous microdroplets.** *Proceedings of the National Academy of Sciences of the United States of America*
Lee, J. K., Walker, K. L., Han, H. S., Kang, J., Prinz, F. B., Waymouth, R. M., Nam, H. G., Zare, R. N.
2019

- **Block copolymer composition drives function of self-assembled nanoparticles for delivery of small-molecule cargo.** *Journal of polymer science. Part A, Polymer chemistry*
Maikawa, C. L., Sevit, A., Lin, B., Wallstrom, R. J., Mann, J. L., Yu, A. C., Waymouth, R. M., Appel, E. A.
2019; 57 (12): 1322-1332
- **Oligo(serine ester) Charge-Altering Releasable Transporters: Organocatalytic Ring-Opening Polymerization and their Use for in Vitro and in Vivo mRNA Delivery** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Benner, N. L., McClellan, R. L., Turlington, C. R., Haabeth, O. W., Waymouth, R. M., Wender, P. A.
2019; 141 (21): 8416-21
- **Dual catalysis for the copolymerisation of epoxides and lactones.** *Chemical communications (Cambridge, England)*
Clayman, N. E., Morris, L. S., LaPointe, A. M., Keresztes, I., Waymouth, R. M., Coates, G. W.
2019
- **Programmable High-Throughput Platform for the Rapid and Scalable Synthesis of Polyester and Polycarbonate Libraries.** *Journal of the American Chemical Society*
Lin, B., Hedrick, J. L., Park, N. H., Waymouth, R. M.
2019
- **Effect of Redox Active Ligands on the Electrochemical Properties of Manganese Tricarbonyl Complexes.** *Inorganic chemistry*
Matson, B. D., McLoughlin, E. A., Armstrong, K. C., Waymouth, R. M., Sarangi, R.
2019
- **Local Delivery of Ox401, Cd80, and Cd86 mRNA Kindles Global Anticancer Immunity** *CANCER RESEARCH*
Haabeth, O., Blake, T. R., McKinlay, C. J., Tveita, A. A., Sallets, A., Waymouth, R. M., Wender, P. A., Levy, R.
2019; 79 (7): 1624-34
- **X-ray Absorption Spectroscopy and Theoretical Investigation of the Reductive Protonation of Cyclopentadienyl Cobalt Compounds** *INORGANIC CHEMISTRY*
McLoughlin, E. A., Giles, L. J., Waymouth, R. M., Sarangi, R.
2019; 58 (2): 1167-76
- **Mechanistic Study of Ruthenium-Catalyzed C-H Hydroxylation Reveals an Unexpected Pathway for Catalyst Arrest** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Mack, J. C., Walker, K. L., Robinson, S. G., Zare, R. N., Sigman, M. S., Waymouth, R. M., Du Bois, J.
2019; 141 (2): 972-80
- **X-ray Absorption Spectroscopy and Theoretical Investigation of the Reductive Protonation of Cyclopentadienyl Cobalt Compounds.** *Inorganic chemistry*
McLoughlin, E. A., Giles, L. J., Waymouth, R. M., Sarangi, R.
2019
- **Mechanistic Study of Ruthenium-Catalyzed C-H Hydroxylation Reveals an Unexpected Pathway for Catalyst Arrest.** *Journal of the American Chemical Society*
Mack, J. B., Walker, K. L., Robinson, S. G., Zare, R. N., Sigman, M. S., Waymouth, R. M., Du Bois, J.
2019
- **Reactivity of NO2 with Porous and Conductive Copper Azobispyridine Metallopolymers.** *Inorganic chemistry*
Clayman, N. E., Manuppil, M. A., Matson, B. D., Wang, S. n., Slavney, A. H., Sarangi, R. n., Karunadasa, H. I., Waymouth, R. M.
2019
- **Ubiquity of polystyrene digestion and biodegradation within yellow mealworms, larvae of Tenebrio molitor Linnaeus (Coleoptera: Tenebrionidae)** *CHEMOSPHERE*
Yang, S., Wu, W., Brandon, A. M., Fan, H., Receveur, J. P., Li, Y., Wang, Z., Fan, R., McClellan, R. L., Gao, S., Ning, D., Phillips, D. H., Peng, et al
2018; 212: 262-71
- **Carving Out Pores in Redox-Active One-Dimensional Coordination Polymers** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Clayman, N. E., Manuppil, M., Umeyama, D., Rudenko, A. E., Karunadasa, H. I., Waymouth, R. M.
2018; 57 (44): 14585-88
- **Delivery of Inorganic Polyphosphate into Cells Using Amphipathic Oligocarbonate Transporters.** *ACS central science*
Fernandes-Cunha, G. M., McKinlay, C. J., Vargas, J. R., Jessen, H. J., Waymouth, R. M., Wender, P. A.

2018; 4 (10): 1394-1402

- **Protonation of a Cobalt Phenylazopyridine Complex at the Ligand Yields a Proton, Hydride, and Hydrogen Atom Transfer Reagent** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
McLoughlin, E. A., Waldie, K. M., Ramakrishnan, S., Waymouth, R. M.
2018; 140 (41): 13233-41
- **Synthesis, Characterization, and Reactivity of Hydroxycyclopentadienyl Cobalt Complexes** *ORGANOMETALLICS*
Wu, W., Solis-Ibarra, D., Walker, K. L., Waymouth, R. M.
2018; 37 (19): 3298-3302
- **Protonation of a Cobalt Phenylazopyridine Complex at the Ligand Yields a Proton, Hydride, and Hydrogen Atom Transfer Reagent.** *Journal of the American Chemical Society*
McLoughlin, E. A., Waldie, K. M., Ramakrishnan, S., Waymouth, R. M.
2018
- **mRNA vaccination with charge-altering releasable transporters elicits human T cell responses and cures established tumors in mice** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Haabeth, O. W., Blake, T. R., McKinlay, C. J., Waymouth, R. M., Wender, P. A., Levy, R.
2018; 115 (39): E9153-E9161
- **Carving Out Pores in Redox-Active One-Dimensional Coordination Polymers.** *Angewandte Chemie (International ed. in English)*
Clayman, N. E., Manuppil, M. A., Umeyama, D., Rudenko, A. E., Karunadasa, H. I., Waymouth, R. M.
2018
- **Ligand-Induced Reductive Elimination of Ethane from Azopyridine Palladium Dimethyl Complexes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Rudenko, A. E., Clayman, N. E., Walker, K. L., Maclaren, J. K., Zimmerman, P. M., Waymouth, R. M.
2018; 140 (36): 11408-15
- **mRNA vaccination with charge-altering releasable transporters elicits human T cell responses and cures established tumors in mice.** *Proceedings of the National Academy of Sciences of the United States of America*
Haabeth, O. A., Blake, T. R., McKinlay, C. J., Waymouth, R. M., Wender, P. A., Levy, R.
2018
- **Ligand-Induced Reductive Elimination of Ethane from Azopyridine Palladium Dimethyl Complexes.** *Journal of the American Chemical Society*
Rudenko, A. E., Clayman, N. E., Walker, K. L., Maclaren, J. K., Zimmerman, P. M., Waymouth, R. M.
2018
- **Functional DNA Delivery Enabled by Lipid-Modified Charge-Altering Releasable Transporters (CARTs)** *BIOMACROMOLECULES*
Benner, N. L., Near, K. E., Bachmann, M. H., Contag, C. H., Waymouth, R. M., Wender, P. A.
2018; 19 (7): 2812-24
- **Enhanced mRNA delivery into lymphocytes enabled by lipid-varied libraries of charge-altering releasable transporters.** *Proceedings of the National Academy of Sciences of the United States of America*
McKinlay, C. J., Benner, N. L., Haabeth, O. A., Waymouth, R. M., Wender, P. A.
2018; 115 (26): E5859-E5866
- **Enhanced mRNA delivery into lymphocytes enabled by lipid-varied libraries of charge-altering releasable transporters** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
McKinlay, C. J., Benner, N. L., Haabeth, O. A., Waymouth, R. M., Wender, P. A.
2018; 115 (26): E5859-E5866
- **Transfer Hydrogenation of Aldehydes, Allylic Alcohols, Ketones, and Imines Using Molybdenum Cyclopentadienone Complexes** *ORGANOMETALLICS*
Wu, W., Seki, T., Walker, K. L., Waymouth, R. M.
2018; 37 (9): 1428-31
- **Catalysis as an Enabling Science for Sustainable Polymers.** *Chemical reviews*
Zhang, X., Fevre, M., Jones, G. O., Waymouth, R. M.
2018; 118 (2): 839-85
- **Catalysis as an Enabling Science for Sustainable Polymers** *CHEMICAL REVIEWS*

- Zhang, X., Fevre, M., Jones, G. O., Waymouth, R. M.
2018; 118 (2): 839–85
- **Pd-Catalyzed Aerobic Oxidation Reactions: Strategies To Increase Catalyst Lifetimes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Ho, W. C., Chung, K., Ingram, A. J., Waymouth, R. M.
2018; 140 (2): 748–57
 - **Biodegradation of polystyrene wastes in yellow mealworms (larvae of *Tenebrio molitor* Linnaeus): Factors affecting biodegradation rates and the ability of polystyrene-fed larvae to complete their life cycle** *CHEMOSPHERE*
Yang, S., Brandon, A., Flanagan, J., Yang, J., Ning, D., Cai, S., Fan, H., Wang, Z., Ren, J., Benbow, E., Ren, N., Waymouth, R. M., Zhou, et al
2018; 191: 979–89
 - **Delivery of Inorganic Polyphosphate into Cells Using Amphipathic Oligocarbonate Transporters** *ACS Cent. Sci.*
Fernandes Cunha, G., McKinlay, C., Vargas, J., Jessen, H., Waymouth, R., Wender, P.
2018
 - **Formation of Polymeric Nanocubes by Self-Assembly and Crystallization of Dithiolane-Containing Triblock Copolymers** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Margulis, K., Zhang, X., Joubert, L., Bruening, K., Tassone, C. J., Zare, R. N., Waymouth, R. M.
2017; 56 (51): 16357–62
 - **Expanding the range of polyhydroxyalkanoates synthesized by methanotrophic bacteria through the utilization of omega-hydroxyalkanoate co-substrates.** *AMB Express*
Myung, J., Flanagan, J. C., Waymouth, R. M., Criddle, C. S.
2017; 7 (1): 118-?
 - **Formation of Polymeric Nanocubes by Self-Assembly and Crystallization of Dithiolane-Containing Triblock Copolymers.** *Angewandte Chemie (International ed. in English)*
Margulis, K., Zhang, X., Joubert, L., Bruening, K., Tassone, C. J., Zare, R. N., Waymouth, R. M.
2017
 - **Recent Progress on the Synthesis of Cyclic Polymers via Ring-Expansion Strategies** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*
Chang, Y. A., Waymouth, R. M.
2017; 55 (18): 2892–2902
 - **Mechanism of Catalytic Oxidation of Styrenes with Hydrogen Peroxide in the Presence of Cationic Palladium(II) Complexes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Walker, K. L., Dornan, L. M., Zare, R. N., Waymouth, R. M., Mudoon, M. J.
2017; 139 (36): 12495–503
 - **Cyclopentadienyl Cobalt Complexes as Precatalysts for Electrocatalytic Hydrogen Evolution** *EUROPEAN JOURNAL OF INORGANIC CHEMISTRY*
Waldie, K. M., Kim, S., Ingram, A. J., Waymouth, R. M.
2017: 2755–61
 - **Multielectron Transfer at Cobalt: Influence of the Phenylazopyridine Ligand** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Waldie, K. M., Ramakrishnan, S., Kim, S., Maclaren, J. K., Chidsey, C. E., Waymouth, R. M.
2017; 139 (12): 4540-4550
 - **1,2-Dithiolane-Derived Dynamic, Covalent Materials: Cooperative Self-Assembly and Reversible Cross-Linking.** *Journal of the American Chemical Society*
Zhang, X., Waymouth, R. M.
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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)