

John Philip Morgan

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Education:

- Ph.D., Chemistry, California Institute of Technology Received: 2003
Advisor: Professor Robert H. Grubbs
Thesis Title: Ruthenium-Based Olefin Metathesis Catalysts Coordinated with
N-Heterocyclic Carbene Ligands: Synthesis and Applications
- B.S., Chemistry (High Honors), Haverford College Received: 1997
Advisor: Professor Frances R. Blase
Thesis Title: Synthesis of Aldol Addition Products *via* Sulfoxide Chiral Auxiliaries

Research Experience:

- 2003-2004 Postdoctoral Research Assistant, Organic/Organometallic Chemistry,
University of Maryland; Advisor: Michael P. Doyle
- Synthesis of heterobimetallic catalysts for rhodium(I)-catalyzed reactions
 - Investigation of novel nonlinear effects in enantioselective carbene-mediated reactions
 - Development of chiral ligands for dirhodium(II) diazodecomposition reactions
- 2003 British Petroleum Postdoctoral Internship, Inorganic/Organometallic Chemistry,
Imperial College, London; Advisor: Vernon Gibson
- Synthesis of previously unexplored ligands and early transition metal complexes for the copolymerization of ethylene with polar monomers
- 1998-2002 Graduate Research Assistant, Organic/Organometallic Chemistry,
California Institute of Technology; Advisor: Robert H. Grubbs
- Synthesis of sterically large and chiral *N*-heterocyclic carbene ligands for ruthenium alkylidene olefin metathesis catalysts
 - Development of *in situ* olefin metathesis catalysts prepared from commercially available reagents
 - Synthesis of air- and moisture-stable analogues of *N*-heterocyclic carbene ligands for ease of handling in both polymer and fine chemical applications
 - Cross and ring closing metathesis of substrates containing vinylic functionality: α,β -unsaturated enones and esters, vinyl epoxides and vinyl siloxanes
 - Ring opening metathesis of polymerizable and non-polymerizable cycloolefins
- 1997-1998 Graduate Research Assistant, Synthetic Organic Chemistry
California Institute of Technology; Advisor: Andrew G. Myers
- Development of novel metal-catalyzed reactions of ene-diyne moieties in the total synthesis of neocarzinostatin, a DNA-cleaving anti-tumor pharmaceutical
- 1995-1997 Undergraduate Research Assistant, Synthetic Organic Chemistry
Haverford College; Advisor: Frances R. Blase
- Progress toward the total synthesis of discodermolide, an anti-bacterial pharmaceutical
 - Use of sulfoxide chiral auxiliaries to perform stereoselective enolate alkylations

Teaching Experience and Other Relevant Work Experience:

- 2005-present Assistant Professor of Organic Chemistry, Bloomsburg University of Pennsylvania, Bloomsburg, PA. Courses taught include: *Organic Chemistry 1 and 2*; *Fundamentals of Organic Chemistry* (a one-semester survey course intended for non-chemistry majors); *Physiological Chemistry* (organic/biochemistry for nursing and allied health professional majors); *Chemistry and the Citizen* (a survey course intended for non-science majors); *General Chemistry Laboratory*; *Introduction to Chemistry* (a one-semester course covering high school chemistry as a precursor to intro college chemistry); *Introduction to Chemical Research*; (in 2008) *Advanced Organic Chemistry* (a topics course covering medicinal and pharmaceutical chemistry).
- 1998-2002 Lecturer/Head Teaching Assistant, Undergraduate Total Synthesis Laboratory, California Institute of Technology
- Prepared and delivered lectures on total synthesis to a class of 10 undergraduates
 - Demonstrated organic laboratory techniques including anhydrous reaction conditions, chromatography, and NMR spectroscopic characterization
 - Conducted teaching assistant meetings, including the assessment of student performance
- 1997 Teaching Assistant, Undergraduate General Chemistry Laboratory, California Institute of Technology
- Demonstrated general laboratory technique, including recrystallization, gas chromatography, mass spectrometry, and UV/vis and IR spectroscopic analysis
 - Responsible for grading and assessment of 7 undergraduates
- 1996-1997 Laboratory Assistant, General Organic Laboratory, Haverford College
- Demonstrated organic laboratory techniques to a class of 15 undergraduates
- 1994-1997 Chemistry Tutor, Organic Chemistry, Haverford College
- Taught problem solving strategies in a one-on-one basis
 - Organized and participated in a “chemistry question center” in which undergraduates could interact with multiple teaching assistants, requiring team teaching efforts
- 1998-2002 NMR Maintenance Assistant, California Institute of Technology
- Trained users in one and two dimensional NMR experiments
- 1998-2003 Mentoring, California Institute of Technology and University of Maryland
- Directly responsible for research tutelage of one graduate and two undergraduate students

Honors:

- Outstanding Graduate Teaching Assistant Award, presented by the chemistry faculty, California Institute of Technology, 2001 and 2002
- Graduate Student Council Teaching Award, California Institute of Technology, 2001
- Dow Chemical Company Travel Fellowship, 2000
- Honorable Mention, Department of Defense Science and Engineering Graduate Fellowship, 1998
- First Year Graduate Fellowship, California Institute of Technology, 1997
- Hughes Scholarship for Biochemical and Biomedical Sciences, Howard Hughes Medical Institute, 1997

- American Chemical Society Achievement Award, Philadelphia Section, 1997
- George Peirce Prize in Chemistry for excellence in undergraduate research, Haverford College, 1997
- Phi Beta Kappa, Zeta of Pennsylvania
- Bausch and Lomb Science Award and Scholarship, University of Rochester, 1993
- Colgate Alumni Memorial Science Scholarship, Colgate University, 1993

Presentations: (Bold authors are undergraduates)

1. "Synthesis of Functionalized Olefins by Cross and Ring-Closing Metathesis." Morgan, J. P.; Chatterjee, A. K.; Scholl, M.; Grubbs, R. H. *Abstracts of Papers of the American Chemical Society*, 220: U106–107 Part 2, August 2000.
2. "Synthesis of Trisubstituted Olefins by Selective Cross Metathesis." Chatterjee, A. K.; Morgan, J. P.; Grubbs, R. H. *Abstracts of Papers of the American Chemical Society*, 220: U41–U41 Part 2, August 2000.
3. "Synthesis and Reactivity of New Ruthenium-Vinylidene Metathesis Catalysts Bearing N-Heterocyclic Carbene Ligands." Hajela, S.; Lee, C. W.; Love, J. A.; Morgan, J. P.; Grubbs, R. H. *Abstracts of Papers of the American Chemical Society*, August 2002.
4. "The Use of Mechanistic Analysis to prepare Ruthenium-based Olefin Metathesis Catalysts of Expanded Activity." Love, J. A.; Morgan, J. P.; Sanford, M. S.; Grubbs, R. H. *Abstracts of Papers of the American Chemical Society*, August 2002.
5. "Advantages to the Use of Preformed N-Heterocyclic Carbene Precursors in Organocatalytic Reactions." Morgan, J. P.; **Endress, C.**; **Shrimp, J. H.** *Abstracts of Papers of the American Chemical Society*, September 2006, CHED 288 at the San Francisco National Meeting of the American Chemical Society.
6. "Designed Amino Acids with an N-Heterocyclic Carbene Sidechain." Morgan, J. P.; **Pursel, H.**; **Amin, S.** *Abstracts of Papers of the American Chemical Society*, September 2006, CHED 294 at the San Francisco National Meeting of the American Chemical Society.
7. "Metal Ion Waste Removal by Means of a Polymer-bound N-Heterocyclic Carbene Precursor." Morgan, J. P.; **Corridoni, M.** *Abstracts of Papers of the American Chemical Society*, September 2006, CHED 308 at the San Francisco National Meeting of the American Chemical Society.
8. "Kinetic Studies of Alcohol Acylation using N-Heterocyclic Carbene Chloroform Adducts as Organocatalysts." Morgan, J. P.; **Shrimp, J. H.** *Abstracts of Papers of the American Chemical Society*, August 2007, CHED 307 at the Boston National Meeting of the American Chemical Society.
9. "Hydrogen-bonded Structures as Organocatalytic Motifs." Morgan, J. P.; **Sanders, K.** *Abstracts of Papers of the American Chemical Society*, August 2007, CHED 304 at the Boston National Meeting of the American Chemical Society.

Publications:

1. Scholl, M.; Trnka, T. M.; Morgan, J. P.; Grubbs, R. H. Increased ring closing metathesis activity of ruthenium-based olefin metathesis catalysts coordinated with imidazolin-2-ylidene ligands. *Tetrahedron Lett.* **1999**, *40*, 2247-2250.
2. Chatterjee, A. K.; Morgan, J. P.; Scholl, M.; Grubbs, R. H. Synthesis of functionalized olefins by cross and ring-closing metatheses. *J. Am. Chem. Soc.* **2000**, *122*, 3783-3784.
3. Morgan, J. P.; Grubbs, R. H. In situ preparation of a highly active N-heterocyclic carbene coordinated metathesis catalyst. *Org. Lett.* **2000**, *2*, 3153-3155.
4. Morgan, J. P.; Morrill, C.; Grubbs, R. H. Selective ring opening cross metathesis of cyclooctadiene and trisubstituted cycloolefins. *Org. Lett.* **2001**, *4*, 67-70.

5. Love, J. A.; Morgan, J. P.; Trnka, T. M.; Grubbs, R. H. A practical and highly active ruthenium-based catalyst that effects the cross metathesis of acrylonitrile. *Angew. Chem. Int. Ed.* **2002**, *41*, 4035-4037.
6. Trnka, T. M.; Morgan, J. P.; Sanford, M. S.; Wilhelm, T. E.; Scholl, M.; Choi, T.-L.; Ding, S.; Day, M. W.; Grubbs, R. H. Synthesis and activity of ruthenium complexes coordinated with phosphine and *N*-heterocyclic carbene ligands. *J. Am. Chem. Soc.* **2003**, *125*, 2546-2558.
7. Doyle, M. P.; Morgan, J. P.; Fettinger, J.; Zavalij, P. Y.; Colyer, J. T.; Timmons, D. J.; Carducci, M. D. Structure-selectivity correlations in dirhodium(II) carboxamidate-catalyzed diazodecomposition and hetero-Diels-Alder reactions: examination of match/mismatch catalyst pairs. *J. Org. Chem.* **2005**, *70*, 5291-5301.
8. Morgan, J. P.; Kundu, K.; Doyle, M. P. A readily assembled titanium(IV)-rhodium(I) heterobimetallic catalyst for alkene hydroacylation. *Chem. Commun.* **2005**, 3307-3309.
9. Doyle, M. P.; Morgan, J. P.; Colyer, J. T. Stereoselectivity in metal carbene and Lewis acid-catalyzed reactions from diastereomeric dirhodium(II) carboxamidates: menthyl *N*-acetyl-2-oxoimidazolidine-4(*S*)-carboxylates. *J. Organomet. Chem.* **2005** (December 1st issue), *690*, 5525-5532.

Patents and Patent Applications:

1. Morgan, J. P.; Morrill, C.; Grubbs, R. H.; Choi, T.-L. Selective ring-opening cross metathesis of low strain cycloolefins. International Patent Publication Number WO 02/079127, published October 10, 2002. U. S. Patent Application Number 20020198426, published December 26, 2002.
2. Grubbs, R. H.; Morgan, J. P.; Benitez, D.; Louie, J. One-pot synthesis of group 8 transition metal carbene complexes useful as olefin metathesis catalysts. International Patent Publication Number WO 02/079208, published October 10, 2002. US Patent Number 6,613,910, published September 2, 2003.
3. Grubbs, R. H.; Louie, J.; Morgan, J. P.; Moore, J. L. Highly active metathesis catalysts generated *in situ* from inexpensive and air stable precursors. U. S. Patent Number 6,610,626, published August 26, 2003.
4. Grubbs, R. H.; Chatterjee, A. K.; Choi, T.-L.; Goldberg, S. D.; Love, J. A.; Morgan, J. P.; Sanders, D. P.; Scholl, M.; Toste, F. D.; Trnka, T. M. Cross-metathesis reaction of functionalized and substituted olefins using group 8 transition metal carbene complexes as metathesis catalysts. International Patent Publication Number WO 02/079126, published October 10, 2002. U. S. Patent Application Number 20040097745, published May 20, 2004.
5. Bell, A.; Moore, J. L.; Grubbs, R. H.; Morgan, J. P. High activity metal carbene catalysts generated using a thermally activated *N*-heterocyclic carbene precursor. National patent application, R.O.C. Patent Application Number 20030144437, July 2003.
6. Love, J. A.; Morgan, J. P.; Trnka, T. M.; Sanford, M. S.; Grubbs, R. H. Synthesis and reactivity of pyridine-coordinated ruthenium-based olefin metathesis catalysts. U. S. Patent Application Number 20030236427 December 2003.

References:

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