

MAURICE BROOKHART

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Present Positions

W.R.Kenan, Jr., Professor Emeritus, Dept. of Chemistry
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Education

B.A., 1964, Johns Hopkins University
Ph.D., 1968, University of California, Los Angeles, Physical Organic Chemistry, S. Winstein, thesis advisor

Professional Experience

University of California, Los Angeles, NSF postdoctoral fellow, 1968
Southampton University, England, NATO postdoctoral fellow, 1968-69
University of North Carolina at Chapel Hill
Assistant (1969-74), Associate (1974-798), and Professor (1978-90) of Chemistry
William R. Kenan, Jr., Professor of Chemistry (1990-2014), Emeritus 2014-present
University of Houston, Professor of Chemistry
University of Wisconsin, Visiting Associate Professor of Chemistry, Fall 1974
University of Rennes, France, Visiting Professor of Chemistry, Spring 1981, Spring 1987
University of Oxford, England, Visiting Professor of Chemistry, 1982-83
University of Bordeaux, France, Visiting Professor of Chemistry, June 1989
CNRS Institute for Coordination Chemistry, Toulouse, France, Visiting Professor of Chemistry, July 1989
Visiting Miller Professor of Chemistry, University of California Berkeley, Fall 1996
Visiting Professor, Instituto de Investigaciones Quimicas, Seville, Spain, Spring 1997
Senior Humboldt Fellow, Univ. of Marburg, Spring 2001, MPI, Muelheim, Spring 2003

Selected Professional Activities and Awards

1986 Chair, Gordon Research Conference on Organometallic Chemistry
1989-91 ACS Petroleum Research Fund Advisory Board
1990-1996 Associate Editor, *Organometallics*
1992 ACS Award in Organometallic Chemistry
1992 North Carolina Section ACS Distinguished Speaker Award
1994 ACS A. C. Cope Scholar Award
1995 National Science Council (Taiwan) Distinguished Lectureship
1995 Japan Society for the Promotion of Science (JSPS) Fellowship
1996 American Academy of Arts and Sciences Fellow
1997-2001 Medicinal Chemistry Study Section, DRG, NIH
1998 PMSE Cooperative Research Award in Polymer Science and Engineering with L. K. Johnson
1998 Charles H. Stone Award (Piedmont Section, ACS)
2000 Royal Society of Chemistry Centenary Lecturer
2000 Honorary Doctorate, University of Rennes, France
2001 Fellow, American Association for the Advancement of Science
2001 Senior Humboldt Research Fellowship
2001 Member, National Academy of Sciences
2002-2006 Chemistry Division Review Committee, Los Alamos National Laboratory
2003 ACS Award in Polymer Chemistry
2007 ACS Sierra Nevada Section Distinguished Chemist Award
2008 North Carolina Award in Science
2010 Willard Gibbs Medal
2015 ACS Gabor A. Somorjai Award for Creative Research in Catalysis
2016 Oesper Award

Selected Lectureships

- 1998: Plenary Lecturer, Australian National Inorganic Chemistry Conference, Reilly Lecturer (University of Notre Dame), Debye Lecturer (Cornell University), Plenary Lecturer, International Conference on Organometallic Chemistry, Ross Lecturer (Dartmouth College)
- 1999: Pfister Lecturer (MIT)
- 2000: Plenary Lecturer, World Polymer Congress (Warsaw, Poland), Mahler Lecturer (University of Texas)
- 2001: Falk-Plaut Lecturer (Columbia University)
- 2002: Bachmann Lecturer (University of Michigan), Milkovich Lecturer (University of Akron), Plenary Lecturer, 1st Blue Sky Conference on Catalytic Olefin Polymerization, (Sorrento, Italy), Herbert C. Brown Lecturer (Purdue University)
- 2003: Plenary Lecture, Heidelberg Forum on Molecular Catalysis, (Heidelberg, Germany), Plenary Lecturer, FEChem Conference on Organometallic Chemistry, (Zurich, Switzerland), Dow Lecturer (University of Ottawa), Dow Lecturer (U. of Ottawa), John D. Roberts Lecturer (California Institute of Technology)
- 2004: Pratt Lecturer (U. of Virginia), Lilly Lecturer (Colorado State University), Dow Lecturer (UC-Berkeley)
- 2005: Plenary Lecture, X Encuentro de Quimica Inorganica (Santiago, Chile), Plenary Lecture, Inorganic National South African Chemical Conference, (Pietermaritzburg, South Africa), Plenary Lecture, XIX National Chemistry Congress, (Kusadasi, Turkey),
- 2007: Patrick Lecturer (Kansas State University)
- 2008: Plenary Lecturer, International Symposium on Homogeneous Catalysis (Florence, Italy), W.S. Johnson Lecturer (Stanford University)
- 2009: Winstein Lecturer (UCLA), Plenary Lecturer, Asia Polyolefin Workshop, (Seoul, Korea)
- 2010: Cady Lecturer (University of Washington), M.L. H. Green Lecturer (Oxford), Plenary Lecturer XXVIII GEQO Conference, (Spain), Barre Lecturer (University of Montreal)
- 2012: Dow/Karabatsos Lecturer (Michigan State University)
- 2013: Plenary Lecturer, EUChemS Conference, (Scotland), Plenary Lecturer, Inaugural R. G. Bergman Lecturer (UC-Berkeley), Wang-Yu Lecturer (Shanghai Institute of Organic Chemistry)
- 2015: Gordon Stone Lecture (University of Bath)

Research Interests

Synthetic and mechanistic organometallic chemistry, applications of organometallic complexes in organic synthesis, reactions of coordinated ligands, carbon-hydrogen bond activation, mechanisms of migration and insertion reactions, homogeneous catalysis by transition metals, especially olefin polymerizations, oligomerizations and dimerizations and catalytic reactions based on carbon-hydrogen bond activation.

PUBLICATIONS - MAURICE BROOKHART

1. Baker, E. W.; Brookhart, M. S.; Corwin, A. H. "Piperindinate Complexes of Nickel and Copper Mesoporphyrin IX" *J. Am. Chem. Soc.* **1964**, *86*, (21) 4587-4590.
2. Brookhart, M.; Diaz, A.; Winstein, S. "Structure of the Nonclassical 7-Norbornenyl Cation" *J. Am. Chem. Soc.* **1966**, *88*, 3135-3136.
3. Diaz, A.; Brookhart, M.; Winstein, S. "Ground- and Transition-State Free Energy Relationships in Sigma and Pi Routes to the Nonclassical 7-Norbornenyl Cation" *J. Am. Chem. Soc.* **1966**, *88*, 3133-3135.
4. Brookhart, M.; Anet, F. A. L.; Winstein, S. "The Behavior of the 3-Phenyl-2-butanols in $\text{SO}_2\text{-FSO}_3\text{H-SbF}_5$ " *J. Am. Chem. Soc.* **1966**, *88*, 5657-5659
5. Brookhart, M.; Anet, F. A. L.; Cram, D. J.; Winstein, S. "Phenonium and Benzylic Cations from 3-Phenyl-2-butanols in $\text{FSO}_3\text{H-SbF}_5$ " *J. Am. Chem. Soc.* **1966**, *88*, 5659-5660.
6. Brookhart, M.; Levy, G. C.; Winstein, S. "O-H Chemical Shift, Conformation, and Electron Delocalization in Protonated Carbonyl Compounds" *J. Am. Chem. Soc.* **1967**, *89*, 1735-1737.
7. Brookhart, M.; Ogliaruso, M.; Winstein, S. "The Homoaromatic 1-Hydroxyhomotropylium Cation" *J. Am. Chem. Soc.* **1967**, *89*, 1965-1966.
8. Lustgarten, R. K.; Brookhart, M.; Winstein, S. "Degenerate 5-Carbon Scrambling in the 7-Norbornadienyl Cation" *J. Am. Chem. Soc.* **1967**, *89*, 6350-6352.
9. Brookhart, M.; Lustgarten, R. K.; Winstein, S. "Bridge Flipping and Rearrangement of Norbornadienyl and 7-Methyl-norbornadienyl Cations" *J. Am. Chem. Soc.* **1967**, *89*, 6352-6354.
10. Brookhart, M.; Lustgarten, R. K.; Winstein, S. "7-Phenyl and 7-Methoxy Norbornadienyl Cations" *J. Am. Chem. Soc.* **1967**, *89*, 6354-6355.
11. Lustgarten, R.; Brookhart, M.; Winstein, S. "Direct Observation of Methyl-Substituted 7-Norbornadienyl and Bicyclo[3.2.0]-heptadienyl Cations" *J. Am. Chem. Soc.* **1968**, *90*, 7364-7366.
12. Richey, H. G., Jr.; Nichols, J. D.; Gassman, P. G.; Fentiman, A. F.; Winstein, S.; Brookhart, M.; Lustgarten, R. K. "A Classical 7-Norbornenyl Cation: Competition Between Aryl and Alkenyl Functions in Stabilizing 7-Aryl-7-Norbornenyl Cations" *J. Am. Chem. Soc.* **1970**, *92*, 3783-3784.
13. Lustgarten, R. K.; Brookhart, M.; Winstein, S.; Gassmann, P. G.; Patton, D. S.; Richey, H. G., Jr.; Nichols, J. D. "Evidence for Symmetrical Bridging in Methylated 7-Norbornenyl Cations" *Tetrahedron Lett.* **1970**, 1699-1702.
14. Brookhart, M.; Davis, E. R. "Direct Observation of the Cyclooctatrienyliron Tricarbonyl Cation and Its Electrocyclic Ring Closure to the Bicyclo[5.1.0]octadienyliron Tricarbonyl Cation" *J. Am. Chem. Soc.* **1970**, *92*, 7622-7623.
15. Lustgarten, R. K.; Brookhart, M.; Winstein, S. "The 7-Methoxynorbornadienyl Cation: Evidence for a Symmetrically Bridged Structure" *Tetrahedron Lett.* **1971**, 141-144.
16. Brookhart, M.; Lustgarten, R. K.; Harris, D. L.; Winstein, S. "Direct Observation of Substituted Quadriptyl Cations and Their Rearrangements" *Tetrahedron Lett.* **1971**, 943-946.
17. Brookhart, M. S.; Davis, E. R. "Low Temperature Protonation of Methylcyclooctatetraeneiron Tricarbonyl" *Tetrahedron Lett.* **1971**, 4349-4352.
18. Lustgarten, R. K.; Brookhart, M.; Winstein, S. "Degenerate and Nondegenerate Isomerizations of 7-Norbornadienyl Cations" *J. Am. Chem. Soc.* **1972**, *94*, 2347-2363.

19. Brookhart, M.; Harris, D. L. "Generation of *Trans*- π -Pentadienyliron Tricarbonyl Cations From Protonation of *Trans*-2,4,Hexadienyliron Tricarbonyl" *J. Organometal. Chem.* **1972**, *42*, 441-446.
20. Brookhart, M.; Davis, E. R.; Harris, D. L. "Low Temperature Protonation of Cyclooctatetraeneiron Tricarbonyl. Generation and Observation of cyclooctatrienyliron Tricarbonyl Cations" *J. Am. Chem. Soc.* **1972**, *94*, 7853-7858.
21. Brookhart, M. S.; Atwater, M. A. M.; "The Thermal Rearrangement and Ring Inversion of the 1-Methoxyhomotropylium Cation" *Tetrahedron Lett.* **1972**, *43*, 4399-4402.
22. Brookhart, M.; Lippman, N. M.; Reardon, E. J. "Isomerization of Cycloocta-1,3,5-trieneiron Tricarbonyl to Bicyclo-[4.2.0]octa-2,4-dieneiron Tricarbonyl" *J. Organometal. Chem.* **1973**, *43*, 247-253.
23. Isidor, J. L.; Brookhart, M. S.; McKee, R. L. "A Novel Furan Dimer" *J. Org. Chem.* **1973**, *38*, 612-613.
24. Reardon, E. J.; Brookhart, M. "*cis*⁴-Cyclononatetraeneiron Tricarbonyl. Its Synthesis, Thermal Rearrangement and Low Temperature Protonation" *J. Am. Chem. Soc.* **1973**, *95*, 4311-4316.
25. Brookhart, M.; Harris, D. L.; Dammann, R. C. "Observation of a π to σ Rearrangement Upon Proton Addition to Bicyclo-[6.1.0]nonatrienemolybdenum Tricarbonyl" *J. Chem. Soc. Chem. Commun.*, **1973**, 187.
26. Brookhart, M.; Young, G. J. "Low Temperature Protonation of Cyclo-octa-1,5-diene-(Duroquinone) Nickel(O)" *J. Organometal. Chem.* **1974**, *94*, 205.
27. Brookhart, M.; Harris, D. L. " π to σ Rearrangements Upon Metal Protonation of Polyolefin Transition Metal Complexes" *Inorg. Chem.* **1974**, *13*, 1540-1541.
28. Brookhart, M.; Dedmond, R. E.; Lewis, B. F. "Isomerization of Bicyclo[5.1.0]octa-2,4-dieneiron Tricarbonyl to Bicyclo-[4.2.0]octa-2,4-dieneiron Tricarbonyl" *J. Organometal. Chem.* **1974**, *72*, 239-245.
29. Humphries, B. A.; Rohrback, M. S.; Brookhart, M. S.; Harrison, J. H. "Kinetics of Formation of 4,4'-Bis-Dimethylaminophenyl Carbonium Ion (BDC⁺) and Its Reaction with Sulf-hydril Residues" *Bioorganic Chem.* **1974**, *3*, 163-175.
30. Scholes, G.; Graham, C. R.; Brookhart, M. S. "Selective Trapping of Dienes by Benzylideneacetoneiron Tricarbonyl. Synthesis and Thermal Rearrangement of Tricyclo[4.4..0.0^{2,5}]nona-2,4-diene" *J. Am. Chem. Soc.* **1974**, *96*, 5665-5667.
31. Lewis, C. P.; Brookhart, M. "Epimerization of Bicyclo[6.1.0]nonatriene" *J. Am. Chem. Soc.* **1975**, *97*, 651-653.
32. Brookhart, M.; Whitesides, T. H.; Crockett, J. M. "Spectroscopic Studies of the Structures of Protonated Dieneiron Tricarbonyl Complexes" *Inorg. Chem.* **1976**, *15*, 1550-1554.
33. Brookhart, M.; Nelson, G. O.; Scholes, G.; Watson, R. A. "Preparation of Bicyclo[4.2.0] octa-2,4-diene-7-one via Trapping with Benzylideneacetoneiron Tricarbonyl" *J. Chem. Soc. Chem Commun.* **1976**, 195-196.
34. Brookhart, M.; Koszalka, G. W.; Nelson, G. O.; Scholes, G.; Watson, R. A. "Synthesis and Reactions of the Tautomeric Complexes-2,3,4,5-Cyclooctatrieneiron Tricarbonyl and Bicyclo[4.2.0]octa-2,4-dien-7-oneiron Tricarbonyl. Generation of Bicyclo[4.2.0]octa-2,4-dien-7-one" *J. Am. Chem. Soc.* **1977**, 8155-8161.
35. Brookhart, M.; Lewis, C. P.; Eisenstadt, A. "Low Temperature Spectroscopic Observations of Oxygen-Protonated Troponeiron Tricarbonyl Complexes" *J. Organometal. Chem.* **1977**, C14-18.

36. Brookhart, M.; Graham, C.; Nelson, G. O.; Scholes, G. "The Chemistry of Diene and Enone Iron Tricarbonyl Complexes" *Annals of the New Acad. Of Sciences* **1977**, *295*, 254-270.
37. Brookhart, M.; Nelson, G. O. "Isolation of Stable Secondary Cationic Iron Carbene Complexes, η^5 - $C_5H_5(CO)_2FeCHC_6H_5PF_6$ and η^5 - $C_5H_5(CO)[P(C_6H_5)_3]FeCHC_6H_5PF_6$ " *J. Am. Chem. Soc.* **1977**, *99*, 6099-6101.
38. Brookhart, M.; Karel, K. J.; Nance, L. E. "The Stereospecificity of Proton Addition to Cycloheptatrieneiron Tricarbonyl" *J. Organometal. Chem.* **1977**, *140*, 203-210.
39. Karel, K. J.; Brookhart, M. "Detection and Measurement of the Rate of 1,3 Iron Shift in Cycloheptatrieneiron Tricarbonyl" *J. Am. Chem. Soc.* **1978**, *100*, 1619-1621.
40. Brookhart, M.; Nelson, G. O. "The Reaction of Benzylideneacetoneiron Tricarbonyl with Dienes; Measurement of Relative Reactivities Using Competition Experiments" *J. Organometal. Chem.* **1979**, *164*, 193-202.
41. Lewis, C. P.; Kitching, W.; Eisenstadt, A.; Brookhart, M. "Fluxional Behavior and Substituent Site Preferences in Cationic Monosubstituted Tropyliumiron Tricarbonyl Complexes" *J. Am. Chem. Soc.* **1979**, *101*, 4896-4906.
42. Wilson, S. R.; Corvan, P. J.; Seiders, R. P.; Hodgson, D. J.; Brookhart, M.; Hatfield, W. E.; Miller, J. S.; Reiss, A. H.; Rogan, P. K.; Gebert, E.; Epstein, A. J. "The Structure and Magnetic and Electrical Conductivity Properties of the Charge Transfer Compound 1,1'-Dimethylferrocenium Bis(tetracyanoquinodimethane), $(CH_3C_5H_3)_2Fe(TCNQ)_2$ " in *Molecular Metals*, ed. W. H. Hatfield, Plenum Press, p 407-414ff, **1979**.
43. Seiders, R. P.; Brookhart, M.; Whitten, D. G. "Synthesis and Reactivity of a Surfactant Ferrocene. Environmental Effects on Oxidation of Ferrocene in Organized Media" *Isr. J. Chem.* **1979**, *18*, 272.
44. Brookhart, M.; Tucker, J. R.; Flood, T. C.; Jensen, J. "Spectroscopic Characterization of an Electrophilic Transition Metal Methylene Complex, η^5 - $C_5H_5[Ph_2PCH_2-CH_2Ph_2]Fe=CH_2^{+}$ ", *J. Am. Chem. Soc.* **1980**, *102*, 1203-1205.
45. Brookhart, M.; Lamanna, W. M. "Mechanisms of Hydrogen Migration in Cyclohexadienylmanganese Tricarbonyl", *J. Am. Chem. Soc.* **1980**, *102*, 3490-3494.
46. Brookhart, M.; Tucker, J. R.; Husk, G. R. "Measurement of Barriers to Aryl Rotation in $Cp(CO)_2Fe=CHC_6H_5^+$ and $Cp(CO)_2Fe=CH(pCH_3C_6H_4)^+$ ", *J. Organomet. Chem.* **1980**, *193*, C23-C26.
47. Brookhart, M.; Broom, B. H.; Kratzer, H. J.; Nelson, G. O. "Reactions of η^5 - $C_5H_5FeCHC_6H_5^+$ with Alkenes and Alkynes. Observation of Efficient Benzylidene Transfer Reactions", *J. Am. Chem. Soc.* **1980**, *102*, 7802-7803.
48. Karel, K. J.; Brookhart, M.; Aumann, R. "The Detailed Mechanism of Thermal Hydrogen Migration in Cyclohexadieneiron Tricarbonyl", *J. Am. Chem. Soc.* **1981**, *103*, 2695-2698.
49. Brookhart, M.; Tucker, J. R.; Husk, G. R. "Facile Synthesis, Spectral Characterization and Ethylidene Transfer Reactions of Complexes of the Type $(Cp(CO)(L)Fe=CH(CH_3)^+$ ", *J. Am. Chem. Soc.* **1981**, *103*, 979-981.
50. Lamanna, W. M.; Brookhart, M. "Preparation and Reactivity of the Cyclohexadienemanganese Tricarbonyl Anion. Potentially Useful Methods of Arene and C-H Bond Activation",

J. Am. Chem. Soc. **1981**, *103*, 989-991.

51. Lau, C.-P.; Singh, P.; Cline, S. J.; Seiders, R.; Brookhart, M.; Marsh, W. E.; Hodgson, D. J.; Hatfield, W. E. "The Synthesis of 1,1'-Bicobaltocene Salts of Tetracyano-p-quinodimethanide and the Structure of 1,1'-Bicobaltocene $[\text{Co(III)Co(III)}][\text{TCNQ}]_3$ ", *Inorg. Chem.* **1982**, *21*, 208-212.
52. Brookhart, M.; Lamanna, W. M.; Humphrey, M. B. "Structural Characterization and Fluxional Behavior of Cyclohexenylmanganese Tricarbonyl. Intramolecular C-H Bond Activation via a 2-Electron, 3-Center M--H--C Interaction", *J. Am. Chem. Soc.* **1982**, *104*, 2117-2126.
53. Karel, K. J.; Albright, T. A.; Brookhart, M. "Fluxionality in Cycloheptatrieneiron Tricarbonyl Complexes", *Organometallics* **1982**, *1*, 419-430.
54. Kegley, S. E.; Brookhart, M.; Husk, G. R. "Spectroscopic Characterization of Electrophilic d^4 Methylene and Benzylidene Complexes of the Type $\text{Cp}(\text{CO})_2(\text{L})\text{M}=\text{CHR}^+$ (L=PPh₃, PEt₃; M=Mo, W; R=H, Ph). Experimental Determination of Barriers to Rotation About the Tungsten-Methylene Multiple Bond", *Organometallics* **1982**, *1*, 760-762.
55. Brookhart, M.; Pinhas, A. R.; Lukacs, A. "The Reaction of Lithium Dimethylcuprate with $\text{C}_6\text{H}_6\text{Mn}(\text{CO})_3^+$. Observation of Methyl Group Migration from Manganese to the Arene Ring in $\text{C}_6\text{H}_6(\text{CO})_2\text{Mn}-\text{CH}_3$ ", *Organometallics* **1982**, *1*, 1730-1731.
56. Brookhart, M.; Tucker, James R.; Husk, G. R. "Synthesis, Spectral Characterization, and Alkylidene Transfer Reactions of Electrophilic Iron Carbene Complexes $\text{Cp}(\text{CO})(\text{L})\text{Fe}=\text{CHR}^+$, L=CO, P(C₆H₅)₃; R=-CH₃, -CH₂CH₃, -CH(CH₃)₂", *J. Am. Chem. Soc.* **1983**, *105*, 258-264.
57. Brookhart, M.; Lamanna, W.; Pinhas, A. R. "Synthesis and Reactivity of Cyclohexenylmanganese Tricarbonyl, a Complex Containing a 2-Electron, 3-Center Mn--H--C Interaction", *Organometallics* **1983**, *2*, 638-649.
58. Brookhart, M.; Lukacs, A. "Preparation of Alkyl Substituted Derivatives of Cyclohexenylmanganese Tricarbonyl via Reduction of Methylated Arene Complexes. Characterization of and Substituent Site Preference Determination for Interconverting Cyclohexenyl Isomers Containing a 2-Electron, 3-Center Mn--H--C Interaction", *Organometallics* **1983**, *2*, 649-658.
59. Schultz, A. J.; Teller, R. G.; Bend, M. A.; Williams, J. M.; Brookhart, M.; Lamanna, W.; Humphrey, M. B. "Argonne Intense Pulsed Neutron Source Used to Solve the Molecular Structure of a Novel Organometallic Complex", *Science*, **1983**, *220*, 197-199.
60. Brookhart, M.; Green, M. L. H. "Carbon-Hydrogen Transition Metal Bonds", *J. Organometal. Chem.* **1983**, *250*, 395-408.
61. Brookhart, M.; Green, M. L. H.; Pardy, R. A. "Two-electron Three-center Carbon-Hydrogen-Cobalt Bonds in the Compounds $[\text{CO}(\eta\text{-C}_5\text{Me}_4\text{R})(\eta\text{-C}_2\text{H}_4(\eta\text{-C}_2\text{H}_4\text{-}\mu\text{-H}))]\text{BF}_4$, R=Me and Et", *J. Chem. Soc. Chem. Commun.* **1983**, 691-693.
62. Brookhart, M.; Timmers, D.; Tucker, J. R.; Williams, G. D.; Husk, G. R.; Brunner, H.; Hammer, B. "Enantioselective Cyclopropane Synthesis Using the Chiral Carbene Complexes $(\text{S}_{\text{Fe}}\text{S}_{\text{C}})$ - and $(\text{R}_{\text{Fe}}\text{S}_{\text{C}})\text{-C}_5\text{H}_5(\text{CO})(\text{Ph}_2\text{R}^*\text{P})\text{Fe}=\text{CHCH}_3^+$ (R*=(S)-2-Methylbutyl). Role of Metal Versus Ligand Chirality in the Optical Induction", *J. Am. Chem. Soc.* **1983**, *105*, 6721-6723.

63. Humphrey, M. B.; Lamanna, W.; Brookhart, M.; Husk, G. R. "The Crystal and Molecular Structure of η^5 -Pentamethylcyclopentadienyl (Trifluoromethanesulfonato)Iron(II) Dicarboxylate: A Strong Electrostatic Iron-Triflate Interaction", *Inorg. Chem.* **1983**, *22*, 3355-3358.
64. Brookhart, M.; Kegley, S. E.; Husk, G. R. "Transfer of Ethylidene From η^5 -C₅H₅(CO)₂Fe=CHCH₃⁺ to *para*-Substituted Styrenes. Loss of Stereochemistry about the C_α-C_β Double Bond of *cis*-β-deuterio-*p*-Methoxystyrene", *Organometallics* **1984**, *3*, 650-652.
65. Brookhart, M.; Lukacs, A. "Manganese-Mediated Reduction of Arenes to Cyclohexa-1,3-dienes Via Mn--H--C Bridged Cyclohexenylmanganese Tricarbonyl Complexes", *J. Am. Chem. Soc.* **1984**, *106*, 4146-4166.
66. Cox, K.; Bashkin, J.; Brookhart, M.; Cloke, F. G. N.; Derome, A.; Grebenik, P. D.; Green, J. C.; Green, M. L. H.; Hare, P. M. "Hexakistrimethylphosphinemolybdenum Chemistry, Dinitrogen, Ethylene, Butadiene, η-Cyclopentadienyl and Related Derivatives", *J. Chem. Soc. Dalton Trans.* **1985**, 423-433.
67. Timmers, F.; Brookhart, M. "Synthesis and Reactivity of Methyl Substituted Butenylmanganese Tricarbonyl Complexes Containing a Two-Electron, Three-Center Mn--H--C Interaction", *Organometallics* **1985**, *4*, 1365-1371.
68. Schmidt, G. F.; Brookhart, M. "Implications of Three-Center, Two-Electron M--H--C Bonding for Related Alkyl Migration Reactions: Design and Study of an Ethylene Polymerization Catalyst", *J. Am. Chem. Soc.* **1985**, *107*, 1443-1444.
69. Brookhart, M.; Studabaker, W. B.; Husk, G. R. "Synthesis, Spectral Characterization, and Carbene Transfer Reactions of CpFe(CO)₂=CH(\bar{c} -C₃H₅)⁺CF₃SO₃⁻. Stabilization of Cyclopropylmethylidene by an Organometallic Fragment", *Organometallics* **1985**, *4*, 943-944.
70. Rush, P. K.; Noh, S. K.; Brookhart, M. "A General Route to C₆H₆(CO)₂Mn-R Complexes Via C₆H₆(CO)₂Mn⁺Na⁺. Alkyl Group Migrations From Manganese to the Coordinated Arene Ring", *Organometallics* **1986**, *5*, 1745-1747.
71. Studabaker, W. B.; Brookhart, M. "(η^5 -C₅H₅)(Ph₂PCH₂CH₂PPh₂)Ru=CH₂⁺AsF₆⁻. Spectral Characterization and Measurement of the Barrier to Methylene Rotation", *J. Organometal. Chem.* **1986**, *310*, C39-C41.
72. Brookhart, M.; Studabaker, W. B. "Cyclopropanes From Reactions of Transition Metal Carbene Complexes with Olefins", *Chem. Rev.* **1987**, *87*, 411-432.
73. Buck, R. C.; Brookhart, M. "Low Temperature Chromatography Column for Routine Use in Organometallic Separations"; Wayda, A. L.; Darensbourg, M. Y., Ed.; *ACS Symposium Series No. 357*, American Chemical Society: Washington, DC, **1987**.
74. Brookhart, M.; Noh, S.-K.; Timmers, F. "General Route to Anionic (η^4 -Diene)Manganese Tricarbonyl Complexes Reactions With Electrophiles", *Organometallics* **1987**, *6*, 1829-1831.
75. Brookhart, M.; Studabaker, W. B. "Iron and Ruthenium Cyclopropylcarbene Complexes C₅H₅(CO)₂M=C(H)(\bar{c} -C₃H₅)⁺CF₃SO₃⁻. Cyclopropylcarbene Transfer Reactions", *Organometallics* **1987**, *6*, 1141-1145.
76. Brookhart, M.; Schmidt, G. F.; Lincoln, D.; Rivers, D. S. "Olefin Insertion Reactions: The Mechanism of Co(III) Catalyzed Ethylene Polymerization" in *Transition Metal Catalyzed Polymerization: Ziegler-Natta and Metathesis Polymerization*, R. P. Quirk, Ed., Cambridge Press, **1988**, pp 497-511.

77. Brookhart, M.; Liu, Y.; Buck, R. C. "Diastereoselective Reactions of Chiral-at-Iron Carbene Complexes $C_5H_5(CO)(PR_3)Fe=CHR^+$. Synclinal Isomers Are More Reactive Than Anticlinical Isomers", *J. Am. Chem. Soc.* **1988**, *110*, 2337-2339.
78. Brookhart, M.; Green, M. L. H.; Wong, L.-L. "Carbon-Hydrogen-Transition Metal Bonds", *Prog. In Inorg. Chem.* **1988**, *36*, 1-124.
79. Brookhart, M.; Noh, S.-K.; Timmers, F. J.; Hong, Y. H. "Anionic Manganese Tricarbonyl Complexes of C_7 and C_8 Cyclic Dienes and Polyenes: Synthesis and Reactions with Electrophiles", *Organometallics* **1988**, *7*, 2458-2465.
80. Brookhart, M.; Lincoln, D. M. "Comparison of Migratory Aptitudes of Hydride and Alkyl Groups in β -Migratory Insertion Reactions of $Cp^*(P(OMe)_3)Rh(C_2H_4)R^+(R=-H, -CH_2CH_3)$ ", *J. Am. Chem. Soc.* **1988**, *110*, 8719-8720.
81. Brookhart, M.; Buck, R. C. "Formation of $Cp(CO)(PR_3)FeCH(OCH_3)C_6H_5$ Complexes Via PR_3 Substitution Reactions, Hydride Addition to $Cp(CO)(PR_3)Fe=CHC_6H_5^+$ and Methoxide Addition to $Cp(CO)(PR_3)Fe=CHC_6H_5^+$. Kinetic and Thermodynamic Diastereoselectivities. Relative Reactivities of *Synclinal* and *Anticlinical* Iron Carbene Isomers", *J. Am. Chem. Soc.* **1989**, *111*, 559-567.
82. Brookhart, M.; Buck, R. C.; Danielson, E. "Synthesis, Spectroscopic Characterization, Dynamics, and Phosphine Trapping of $Cp(CO)Fe[\eta^3-CH(R)C_6H_5]$ Complexes [$R = H, OCH_3$]", *J. Am. Chem. Soc.* **1989**, *111*, 567-574.
83. Brookhart, M.; Studabaker, W. B.; Humphrey, M. B.; Husk, G. R. "Synthesis and Spectral Characterization of a Series of Iron and Ruthenium Benzylidene Complexes $Cp(CO)(L)M=CH(C_6H_4R)^+$ ($M = Fe, Ru$; $L = CO, PPh_3$; $R = p-H, p-F, p-CH_3, p-OCH_3$). Barriers to Aryl Rotation and Benzylidene Transfer Reactions", *Organometallics* **1989**, *8*, 132-140.
84. Brookhart, M.; Liu, Y. "Synthesis, Structure and Reactivity of Highly Electrophilic Carbene Complexes of the Type $C_5H_5(CO)(L)Fe=CHR^+$ ", *NATO Advanced Research Workshop: Advances in Metal Carbene Chemistry*, U. Schubert, Ed.; Kluwer Academic Publishers **1989** pp 251-270.
85. Brookhart, M.; Lincoln, D. M.; Volpe, Jr., A. F.; Schmidt, G. F. "Ligand and Substituent Effects on the Dynamics and Structure of Agostic Complexes of the Type $C_5R_5(L)Co(CH_2CHR'-\mu-H)^+BF_4^-$ ($L = P(OMe)_3, PMe_3$; $R' = H, Me$)", *Organometallics* **1989**, *8*, 1212-1218.
86. Brookhart, M.; Buck, R. C. "Enantioselective Benzylidene Transfer Reactions Using the Chiral-at-Iron Benzylidene Complexes ($S_{Fe}S_C$)- and ($R_{Fe}S_C$)- $Cp(CO)(Ph_2R^*)Fe = CHC_6H_5^+$ ($R^* = (S)$ -2-methylbutyl) and (S_{Fe})- and (R_{Fe})- $Cp(CO)(PET_3)Fe = CHC_6H_5^+$ " *J. Organomet. Chem.* **1989**, *370*, 111-127. (Invited Article)
87. Brookhart, M.; Yoon, J. "Reactions of the η^3 -Allyliron Tricarbonyl Anion with Carbon Electrophiles", *J. Am. Chem. Soc.* **1989**, *111*, 4117-4118.
88. Brookhart, M.; Liu, Y. "When Phenylcyclopropanes Are Generated by γ -Ionization of Erythro- and Threo- d_2 - $C_2H_5(CO)_2FeCHDCHDCH(OCH_3)C_6H_5$, Cleavage of the Fe- C_α Bond Occurs With Inversion of Configuration of C_α ", *Organometallics*, **1989**, *8*, 1569-1572.
89. Brookhart, M.; Liu, Y. "Resolution of the Chiral-at-Iron Acetyl Complexes $C_5H_5(CO)(PR_3)Fe-C(O)CH_3$ ($R=-CH_3, -CH_3, -CH_2CH_3$). Enantioselective Cyclopropane Synthesis Using The Chiral Carbene Complexes (S_{FE})- and (R_{FE})-

- $C_5H_5(CO)(PR_3)Fe=CHCH_3^+$ (R=-CH₃, CH₂CH₃)” *Organometallics* **1989**, *8*, 1572-1573.
90. Peng, W. E.; Gamble, A. S.; Templeton, J. L.; Brookhart, M. “Reactions of $[Cp(CO)_2Fe=CHAr]^+$ (Ar = p-C₆H₄OMe) with O=N-Ar’ (Ar’=C₂H₅, C₆H₄NMe₂) and PhN=NPh”, *Inorg. Chem.* **1990**, *29*, 463-467.
 91. Lincoln, D. M.; Brookhart, M.; Bennett, M. A.; Pelling, S. “Dynamics of Agostic Complexes of the Type $C_5R_5(C_2H_4)M(CH_2CH_2-\mu-H)^+$. Energy Differences Between and Ancillary Ligand Control of Agostic and Terminal Hydride Structures”, *J. Am. Chem. Soc.* **1990**, *112*, 2691-2694.
 92. Brookhart, M.; Volpe, A. F.; Yoon, J. “Coupling of Carbon Electrophiles with Dienes and Polyenes Promoted by Transition Metals”, in *Comprehensive Organic Synthesis*; Vol. 4, Trost, B. M., Ed.; Pergamon Press, Oxford, **1991**; pp. 695-714.
 93. Brookhart, M.; Volpe, A. F.; Lincoln, D. M.; Horvath, I. T.; Millar, J. M. “Detection of an Alkyl Ethylene Complex During Ethylene Polymerization by a Co(III) Catalyst. Energetics of the β -Migratory Insertion Reaction”, *J. Am. Chem. Soc.* **1990**, *112*, 5634-5636.
 94. Luan, L.; White, P. S.; Brookhart, M.; Templeton, J. L. “Tungsten Nitrene Complexes $Tp^*W(CO)_2(NR)^+R$ (R=Ph, Bu^t) Generated From Amido Complexes $Tp^*W(CO)_2(NHR)$ ”, *J. Am. Chem. Soc.* **1990**, *112*, 8190-8192.
 95. Brookhart M.; Liu, Y.; Goldman, E. W.; Timmers, D. A.; Williams, G. D. “Enantioselective Cyclopropane Syntheses Using the Chiral Carbene Complexes (S_{FE})- and (R_{FE})- $C_5H_5(CO)(PR_3)Fe=CHCH_3^+$. A Mechanistic Analysis of the Carbene Transfer Reactions”, *J. Am. Chem. Soc.* **1991**, *113*, 927-939.
 96. Brookhart, M.; Liu, Y. “Investigation of the Stereochemistry of Fe-C _{α} Bond Cleavage When Phenylcyclopropanes is Generated by γ -Ionization of Stereospecifically Deuterated $C_5H_5(CO)_2Fe-CHD-CHD-CH(OCH_3)C_6H_5$ Complexes. A Transition State Model for Transfer of the Carbene Ligand from $C_5H_5(CO)_2Fe=CHR^+$ to Alkenes”, *J. Am. Chem. Soc.* **1991**, *113*, 939-944.
 97. Brookhart, M.; Sabo-Etienne, S. “Catalytic Tail-to-Tail Dimerization of Methyl Acrylate Using Rh(III) Catalysts”, *J. Am. Chem. Soc.* **1991**, *113*, 2777-2779.
 98. Brookhart, M.; Volpe, A. F.; DeSimone, J. M.; Lamanna, W. M. “Co(III) Catalyzed Polymerization of Ethylene, Oligomerizations of 1-Hexene and Copolymerization of Ethylene and 1-Hexene”, *Polym. Prepr., Am. Chem. Soc. Div. Polym. Chem.* **1991**, *32*, 461-462.
 99. Feng, S. G.; Luan, L.; White, P.; M. Brookhart, Templeton, J. L. “Mononuclear *cis*(Carbonyl)oxotungsten(IV) Complexes of Hydrotris(3,5-dimethyl-1-pyrazolyl)borate” *Inorg. Chem.* **1991**, *30*, 2582-2584.
 100. Bennett, M. A.; McMahon, I. J.; Pelling, S.; Brookhart, M.; Lincoln, D. M. “Protonation of Diene Complexes of Rhodium, Iridium, Ruthenium and Osmium: A Fine Balance Between Terminal and Agostic Hydrides”, *Organometallics* **1992**, *11*, 127-138.
 101. Brookhart, M.; Chandler, W. A.; Pfister, A. C.; Santini, C. C.; White, P. S. “Synthesis and Reactivity of $[(C_2F_5)_2PCH_2CH_2P(C_2F_5)_2]Fe(CO)_3$ ”, *Organometallics* **1992**, *11*, 1263-1274.
 102. Brookhart, M.; Chandler, W.; Kessler, R. J.; Liu, Y.; Pienta, N. J.; Santini, C. C.; Hall, C.;

- Perutz, R. N.; Timney, J. A. "Matrix Isolation and Transient Absorption Studies of Bis(bis(pentafluoroethyl)phosphine)ethane Tetracarbonyl Chromium: Intermolecular Alkane Complexes and Intramolecular F-Coordination", *J. Am. Chem. Soc.* **1992**, *114*, 3802-3815.
103. Luan, L.; Brookhart, M.; Templeton, J. L. "Intramolecular Hydride Migration from Formyl to Carbonyl and Nitrene Ligands", *Organometallics* **1992**, *11*, 1433-1435.
104. Brookhart, M.; Hauptman, E. "The Mechanism of Rh(III)-Catalyzed Methyl Acrylate Dimerization", *J. Am. Chem. Soc.* **1992**, *114*, 4437-4439.
105. Brookhart, M.; Rix, F. C.; DeSimone, J. M.; Barborak, J. C. "Palladium(II) Catalysts for Living Alternating Copolymerization of Olefins and Carbon Monoxide", *J. Am. Chem. Soc.* **1992**, *114*, 5894-5895.
106. Perez, P. J.; Luan, L.; White, P. S.; Brookhart, M.; Templeton, J. L. "Simple Low Valent Amido, Imido and Nitrido Complexes of Tungsten", *J. Am. Chem. Soc.* **1992**, *114*, 7928-7929.
107. Brookhart, M.; Grant, B. E.; Volpe, A. F., Jr. "[3,5-(CF₃)₂C₆H₃)₄B][H(OEt₂)₂]⁺: A Convenient Reagent for Generation and Stabilization of Cationic, Highly Electrophilic Organometallic Complexes", *Organometallics* **1992**, *11*, 3920-3922.
108. Brookhart, M.; Hauptman, E.; Lincoln, D. M. "β-Migratory Insertion Reactions of (η⁵-C₅R'₅)Rh(L)(C₂H₄)R⁺BF₄⁻ (R' = -H, -CH₃; R = -H, -C₂H₅; L = P(OMe)₃, PMe₃). Comparison of the Energetics of Hydride versus Alkyl Migration", *J. Am. Chem. Soc.* **1992**, *114*, 10394-10401.
109. Perez, P. M.; Brookhart, M.; Templeton, J. L. "A Copper(I) Catalyst for Carbene and Nitrene Transfer to Form Cyclopropanes, Cyclopropenes and Aziridines", *Organometallics* **1993**, *12*, 261-262.
110. Brookhart, M.; Grant, B. E. "The Mechanism of a Co(III)-Catalyzed Olefin Hydrosilation Reaction: Direct Evidence for a Silyl Migration Pathway", *J. Am. Chem. Soc.* **1993**, *115*, 2151-2156.
111. Brookhart, M. S.; Hauptman, E.; Sabo-Etienne, S. "Transition Metal Catalyzed Dimerization of Olefins" in *Organic Synthesis via Organometallics*; eds, D. Enders, H.-J. Gais, W. Keim, Vieweg Publishing: Germany, **1993**, p. 69-77.
112. Chang, S.; White, P. S.; Brookhart, M. "Hydride Reduction of (Diene)iron Tricarbonyl Complexes as a Route to Substituted (Allyl)iron Tricarbonyl Anions. Detection of a Formyl Intermediate in the Hydride Reduction of (1,3-Butadiene)iron Tricarbonyl by Et₃BH", *Organometallics* **1993**, *12*, 3636-3644.
113. Chang, S.; Yoon, J.; Brookhart, M. "Carbon-Carbon Bond Forming Reactions of η³-Allyl Iron Tricarbonyl Anions with Carbon Electrophiles", *J. Am. Chem. Soc.* **1994**, *116*, 1869-1879.
114. Hauptman, E.; Brookhart, M.; Fagan, P. J.; Calabrese, J. C. "Generation of [C₅(CH₃)₅Ru(NO)(CH₃)H₂O]⁺[BAR'₄]⁻ (Ar' = 3,5-C₆H₃(CF₃)₂) and Its Reaction with Methyl Acrylate to Produce Chelate Complexes of the Type [C₅(CH₃)₅Ru(NO)(CH(R))

$\text{CH}_2\text{COOCH}_3$)⁺ R = H, CH₃)”, *Organometallics* **1994**, *13*, 774-780.

115. Brookhart, M.; Wagner, M. I.; Balavoine, G. G. A.; Haddou, H. “Polymers with Main-Chain Chirality. Synthesis of Highly Isotactic, Optically Active Poly(4-tert-Butylstyrene-alt-CO) Using Pd(II) Catalysts Based on C₂-Symmetric bis-Oxazoline Ligands”, *J. Am. Chem. Soc.* **1994**, *116*, 3641-3642.
116. Powell, K. R.; Perez, P. J.; Luan, L.; Feng, S. G.; White, P. S.; Brookhart, M.; Templeton, J. L. “Synthesis and Reactivity of Low-Valent Amido, Imido, Azavinylidene, and Nitrido Complexes of Tungsten”, *Organometallics* **1994**, *13*, 1851-1864.
117. Hauptman, E.; Sabo-Etienne, S.; White, P. S.; Brookhart, M.; Garner, M. J.; Fagan, P. J.; Calabrese, J. C. “Design and Study of Rh(III) Catalysts for the Selective Tail-to-Tail Dimerization of Methyl Acrylate”, *J. Am. Chem. Soc.* **1994**, *116*, 8038-8060.
118. Perez, P. J.; White, P. S.; Brookhart, M.; Templeton, J. L. “Nitrene Transfer to Trimethylphosphine from Cationic Tungsten Tosyl Nitrene Complexes [Tp'(CO)₂WNTs][OTf]”, *Inorg. Chem.* **1994**, *33*, 6050-5056.
119. Rix, F. C.; Brookhart, M. “Energetics of Migratory Insertion Reactions in Pd(II) Acyl Ethylene, Alkyl Ethylene and Alkyl Carbonyl Complexes”, *J. Am. Chem. Soc.* **1995**, *117*, 1137-1138.
120. Scharer, E.; Brookhart, M. “Insertion Reactions of Electrophilic Iron Carbene Complexes with Organosilanes: A Synthetic and Mechanistic Study”, *J. Organometal. Chem.* **1995**, *497*, 61-71 (Invited Article).
121. Brookhart, M.; DeSimone, J. M.; Grant, B. E.; Tanner, M. J. “Co(III)-Catalyzed Living Polymerization of Ethylene: Routes to End-Capped Polyethylene with a Narrow Molar Mass”, *Macromolecules* **1995**, *28*, 5378-5380.
122. Johnson, L. K.; Killian, C. M.; Brookhart, M.; “New Pd(II)- and Ni(II)-Based Catalysts for Polymerization of Ethylene and α -Olefins”, *J. Am. Chem. Soc.* **1995**, *117*, 6414-6415.
123. Scharer, E.; Chang, S.; Brookhart, M. “Spectroscopic Characterization and Dynamic Properties of Cationic η^2 -Silane and η^2 -H₂ Complexes of General Structure Cp(CO)(L)Fe(HsiR₃)⁺ and Cp(CO)(L)Fe(H₂)⁺(L=PEt₃, PPh₃, PPh₃)¹⁺”, *Organometallics* **1995**, *14*, 5686-5694
124. Johnson, L. K.; Mecking, S.; Brookhart, M. “Copolymerization of Ethylene and Propylene with Functionalized Vinyl Monomers by Palladium(II) Catalysts”, *J. Am. Chem. Soc.* **1996**, *118*, 267-268.
125. Rix, F. C.; Brookhart, M.; White, P. S. “Electronic Effects on the β -Alkyl Migratory Insertion of *para*-Substituted Styrene Methyl Palladium Complexes”, *J. Am. Chem. Soc.* **1996**, *118*, 2436-2448.
126. Rix, F. C.; Brookhart, M.; White, P. S. “Mechanistic Studies of the Palladium(II)-Catalyzed Copolymerization of Ethylene with Carbon Monoxide”, *J. Am. Chem. Soc.* **1996**, *118*,

4746- 4764.

127. DiRenzo, G. M.; White, P. S.; Brookhart, M. "Mechanistic Studies of Catalytic Olefin Dimerization Reactions Using Electrophilic η^3 -Allyl-Pd(II) Complexes", *J. Am. Chem. Soc.* **1996**, *118*, 6225-6234.
128. Brookhart, M.; Wagner, M. I. "Synthesis of A Stereoblock Polyketone Through Ancillary Ligand Exchange", *J. Am. Chem. Soc.* **1996**, *118*, 7219-7220.
129. Killian, C. M.; Tempel, D. J.; Johnson, L. K., Brookhart, M. "Living Polymerization of α -Olefins Using Ni(II)- α -Diimine Catalysts. Synthesis of New Block Polymers Based on α -Olefins", *J. Am. Chem. Soc.* **1996**, *118*, 11664-11665.
130. Casarrubios, L.; Perez, J. A.; Brookhart, M.; Templeton, J. L. "Lewis Acid Catalyzed Synthesis of Aziridines", *J. Org. Chem.* **1996**, *61*, 8358-8359.
131. Lenges, C. P.; Grant, B. E.; Brookhart, M. "H/D Exchange Reactions between C_6D_6 and $C_5Me_5Co(CH_2=CHR)_2$, (R = H, SiMe₃). Evidence for Oxidative Addition of C_{sp^2} -H Bonds to the $[C_5Me_5(L)Co]$ Moiety", *J. Organometal. Chem.* **1997**, *528*, 199-203.
132. LaPointe, A. M.; Rix, F. C.; Brookhart, M. "Mechanistic Studies of Palladium(II)-Catalyzed Hydrosilation and Dehydrogenative Silation Reactions", *J. Am. Chem. Soc.* **1997**, *119*, 906-917.
133. Lenges, C. P.; Brookhart, M. "Co(I)-Catalyzed Inter- and Intramolecular Hydroacylation of Olefins with Aromatic Aldehydes", *J. Am. Chem. Soc.* **1997**, *119*, 3165-3166.
134. Killian, C. M.; Johnson, L. K.; Brookhart, M. "Preparation of Linear α -Olefins Using Cationic Nickel(II) α -Diimine Catalysts", *Organometallics* **1997**, *16*, 2005-2007.
135. Tanner, M. J.; Brookhart, M.; DeSimone, J. M. "Observation of an Inverse Kinetic Isotope Effect in a Co(III)-catalyzed Polymerization of Ethylene", *J. Am. Chem. Soc.* **1997**, *119*, 7617-7618.
136. Diaz-Requejo, M. Mar; Perez, Pedro J.; Brookhart, M.; Templeton, J. L. "Substituent Effects on the Reaction Rates of Copper-Catalyzed Cyclopropanation and Aziridination of *para*-Substituted Styrenes", *Organometallics* **1997**, *16*, 4399-4402.
137. Chang, S.; Scharrer, E.; Brookhart, M. "Catalytic Silane Alcoholysis Based on the $C_5H_5(CO)(PPh_3)Fe^+$ Moiety. NMR Spectroscopic Identification of Key Intermediates", *J. Mol. Catal.* **1998**, *130*, 107-119.
138. Mecking, S.; Johnson, L. K.; Wang, L.; Brookhart, M. "Mechanistic Studies on the Palladium-Catalyzed Copolymerization of Ethylene and α -Olefins with Methyl Acrylate", *J. Am. Chem. Soc.* **1998**, *120*, 888-899.
139. LaPointe, A. M.; Brookhart, M. "Reactions of Cationic Pd(II) Methyl and Vinyl Complexes with Alkynes", *Organometallics* **1998**, *17*, 1530-1537.

140. Small, B. L.; Brookhart, M.; Bennett, A. M. A. "Highly Active Iron and Cobalt Catalysts for the Polymerization of Ethylene" *J. Am. Chem. Soc.* **1998**, *120*, 4049-4050.
141. Temple, D. J.; Brookhart, M. "The Dynamics of the β -Agostic Isopropyl Complex (ArN=C(R)-C(R)=NAr)Pd(CH-(CH₂- μ -H)(CH₃))⁺BAR₄⁻ (AR=2,6-C₆H₃(i-Pr)₂): Evidence for In-Place Rotation versus Dissociation of the Agostic Methyl Group", *Organometallics* **1998**, *17*, 2290-2296.
142. Lenges, C. P.; White, P. S.; Brookhart, M. "Mechanistic and Synthetic Studies of the Addition of Alkyl Aldehydes to Vinyl Silanes Catalyzed by Co(I) Complexes" *J. Am. Chem. Soc.* **1998**, *120*, 6965-6979.
143. Small, B. L.; Brookhart, M. "Iron-Based Catalysts with Exceptionally High Activities and Selectivities for Oligomerization of Ethylene to Linear α -Olefins", *J. Am. Chem. Soc.* **1998**, *120*, 7143-7144.
144. McLain, S. J.; Feldman, J.; McCord, E. F.; Gardner, K. H.; Teasley, M. F.; Coughlin, E. B.; Sweetman, K. J.; Johnson, L. K.; Brookhart, M. "Addition Polymerization of Cyclopentene With Nickel and Palladium Catalysts", *Macromolecules* **1998**, *31*, 6705-6707.
145. Svejda, S. A.; Brookhart, M. "Ethylene Oligomerization and Propylene Dimerization Using Cationic (α -Diimine)Ni(II) Catalysts", *Organometallics* **1999**, *18*, 65-74.
146. Lenges, C. P.; White, P. S.; Brookhart, M. "Structure and Reactivity of a Unique Phthalaldehyde Cobalt(I) Complex Which Exhibits Both σ - and π - Modes of Aldehyde Binding", *Angewandte Chemie Int. Ed. Engl.* **1999**, *38*, 552-555.
147. Small, B. L.; Brookhart, M. "Polymerization of Polypropylene by a New Generation of Iron Catalysts: Mechanisms of Chain Initiation, Propagation, and Termination", *Macromolecules* **1999**, *32*, 2120-2130.
148. Cetinkaya, B.; Cetinkaya, E.; Brookhart, M.; White, P.S.; "Ruthenium(II) complexes with 2,6-pyridyl-diimine ligands: synthesis, characterization and catalytic activity in epoxidation reactions", *J. Molecular Catalysis A: Chemical* **1999**, *142*, 101-112.
149. Lenges, C.P.; White, P. S.; Brookhart, M. "Hydrogen/Deuterium Exchange Reactions and Transfer Hydrogenations Catalyzed by [C₅Me₅Rh(olefin)₂] Complexes: Conversion of Alkoxy Silanes to Silyl Enolates", *J. Am. Chem. Soc.* **1999**, *121*, 4385-4396.
150. Lenges, C.P.; Brookhart, M. "Addition of Olefins to Aromatic Ketones Catalyzed by Rh(I) Olefin Complexes", *J. Am. Chem. Soc.* **1999**, *121*, 6616-6623.
151. Svejda, S. A.; Johnson, L. K.; Brookhart, M. "Low Temperature Spectroscopic Observation of Chain Growth and Migratory Insertion Barriers in Well-Defined (α -Dimine)Ni(II) Olefin Polymerization Catalysts", *J. Am. Chem. Soc.* **1999**, *121*, 10634-10635.
152. Lenges, C. P.; Brookhart, M. "Isomerization of Aldehydes Catalyzed by Rhodium(I) Olefin Complexes", *Angewandte Chemie Int. Ed. Engl.* **1999**, *38*, 3533-3537.

153. Gates, D. P.; White, P. S.; Brookhart, M. "The Insertion of Sulfur Dioxide into Palladium-Methyl bonds: the Synthesis and X-ray Crystal Structure of an Unusual $[(dppp)PdOS(Me)O]_2[B(Ar')_4]_2$ ", *Chemical Communications* **2000**, 47-48.
154. Gates, D. P.; Svejda, S. A.; Onate, E.; Killian, C. M.; Johnson, L. K.; White, P. S.; Brookhart, M. "The Synthesis of Branched Polyethylene Using (α -Diimine)Nickel(II) Catalysts: The Influence of Temperature, Ethylene Pressure and Ligand Structure on Polymer Properties", *Macromolecules* **2000**, *33*, 2320-2334.
155. Lenges, C. P.; White, P. S.; Marshall, W. J.; Brookhart, M. "Synthesis, Structure and Reactivity of $[C_5Me_5CoLL']$ Complexes with L = Pyridine and L' = Olefin or L-L' = Bipyridine", *Organometallics* **2000**, *19*, 1247-1254.
156. Grant, B. E.; Lenges, C. P.; Prosenc, M. H.; White, P.S.; Brookhart, M. "High Oxidation State Organometallic Cobalt Complexes: Synthesis and Characterization of Dihydridodisilyl Cobalt(V) Species", *Angew. Chem. Int. Ed. Engl.* **2000**, *39*, 1676-1679.
157. Shultz, C. S.; Ledford, J.; DeSimone, J. M.; Brookhart, M. "Kinetic Studies of Migratory Insertion Reactions at the (1,3-Bis(diphenylphosphino)propane)Pd(II) Center and Their Relationship to the Alternating Copolymerization of Ethylene and Carbon Monoxide", *J. Am. Chem. Soc.* **2000**, *122*, 6351-6356.
158. Hicks, F. A.; Brookhart, M. "Synthesis of 2-Anilino-tropone via Palladium-Catalyzed Amination of 2-Triflate-tropone", *Organic Letters* **2000** *2*, 219-221.
159. Johnson, L. K.; Ittel, S. D.; Brookhart, M. "Late Metal Catalysts for Ethylene Homo- and Copolymerization", *Chemical Reviews* **2000**, *100*, 1169-1203.
160. Tempel, D. J.; Johnson, L. K.; Huff, R. L.; White, P. S.; Brookhart, M. "Mechanistic Studies of Pd(II) α -Diimine Catalyzed Olefin Polymerizations", *J. Am. Chem. Soc.* **2000**, *122*, 6686-6700.
161. Bosch, M.; Brookhart, M.; Kerstin, I.; Werner, H. "The Rhodium-Catalyzed Cyclotetramerization Butadiene: Isolation and Structural Characterization of an Intermediate" *Angewandte Chemie Int. Ed. Engl.* **2000**, *39*, 2304-2307.
162. Yagyu, T.; Osakada, K.; Brookhart, M. "Single and Multiple Insertion of Carbon-Carbon Triple Bonds into the Palladium-Aryl Bond of Cationic and Neutral Arylpalladium Complexes with a 2, 2'-Bipyridine Ligand" *Organometallics* **2000**, *19*, 2125-2129.
163. Reinartz, S.; White, P. S.; Brookhart, M.; Templeton, J. L. "Tp' PtH₃: A Stable Platinum(IV) Trihydride" *Organometallic* **2000**, *19*, 3748-3750..
164. Reinartz, S.; White, P. S.; Brookhart, M. and Templeton, J. L. "Acid Assisted Reduction Elimination as a Route to Platinum(II) Products from Trispyrazolylborate Platinum(IV) Reagents", *Organometallics* **2000**, *19*, 3854-3866.

165. Dias, E. L.; White, P. S.; Brookhart, M. "Stable, Cationic Alkyl-Olefin Complexes of Ruthenium(II) and Rhodium(III): Effects of Ligand Geometry Upon Olefin Insertion/Alkyl Migration", *Organometallics* **2000**, *19*, 4995-5004.
166. Rachita, J. J.; Huff, R. L.; Bennett, J. L.; Brookhart, M. "Oligomerization of Ethylene to Branched Alkenes Using Neutral Phosphinosulfonamide Nickel(II) Complexes" *Journal of Polymer Science Part A: Polymer Chemistry* **2000**, *38*, 4627-4640.
167. Shultz, C.S.; DeSimone, J.M.; Brookhart, M. "Cationic Four- and Five-Coordinate Ni(II) Complexes: Insights into the Nickel(II)-Catalyzed Copolymerization of Ethylene and Carbon Monoxide" *Organometallics* **2001**, *20*, 16-18.
168. Gottfried, A. E.; Brookhart, M. "Living Polymerization of Ethylene Using Pd(II)- α -Diimine Catalysts" *Macromolecules* **2001**, *34*, 1140-1142.
169. Dias, E. L.; White, P. S.; Brookhart, M. "Synthesis and Properties of a Stable, Cationic, Rhodium Lewis Acid Catalyst for Hydrosilation, Mukaiyama Aldol and Cyclopropanation Reactions" *Chemical Communications* **2001**, *5*, 423-424.
170. Dias, E. L.; White, P. S.; Brookhart, M. "Rhodium(I) Catalyzed Homologation of Aromatic Aldehydes with Trimethylsilyldiazomethane" *J. Am. Chem. Soc.* **2001**, *123*, 2442-2443.
171. Reinartz, S.; White, P. S.; Brookhart, M.; Templeton, J. L. "Synthesis of Platinum(IV) Aryl Dihydride Complexes Via Arene C-H Bond Activation" *Organometallics* **2001**, *20*, 1709-1712.
172. McCord, E. F.; McLain, S. J.; Nelson, L. T. J.; Arthur, S. D.; Coughlin, E. B.; Ittel, S. D.; Johnson, L. K.; Tempel, D.; Killian, C. M.; Brookhart, M. "13C and 2D NMR Analysis of Propylene Polymers Made with α -Diimine Late Metal Catalysts" *Macromolecules* **2001**, *34*, 362-371.
173. Muellers, B. T.; Park, J.-W.; Brookhart, M. S.; Green, M. M.; "Glassy State and Secondary Structures of Chiral Macromolecules: Polyisocyanates and Polyketones" *Macromolecules* **2001**, *34*, 572-581.
174. Leatherman, M. D.; Brookhart, M.; "Ni(II)-Catalyzed Polymerization of *Trans*-2-Butene" *Macromolecules* **2001**, *34*, 2748-2750.
175. Reinartz, S.; Baik, M.; White, P. S.; Brookhart, M.; Templeton, J. L.; "Synthesis, Structure and Electronic Properties of Monomeric and Dimeric Trispyrazolylborate Platinum(II) Hydride Complexes" *Inorganic Chemistry* **2001**, *40*, 4726-4732.
176. Reinartz, S.; White, P. S.; Brookhart, M.; Templeton, J. L.; "Five-coordinate Trispyrazolylborate Dihydridosilyl Platinum(IV) Complexes" *J. Am. Chem. Soc.* **2001**, *123*, 6425-6426.
177. Shultz, L. H.; Brookhart, M.; "Measurement of the Barrier to β -Hydride Elimination in a β -Agostic Pd-Ethyl Complex: A Model for the Energetics of Chain-Walking in

- (α -Diimine) PdR^+ Olefin Polymerization Catalysts” *Organometallics* **2001**, *20*, 3975-3982.
178. Ledford, J.; Shultz, C. S.; Gates, D. P.; White, P. S.; DeSimone, J. M.; Brookhart, M.; “Bond Angle Effects on the Migratory Insertion of Ethylene and Carbon Monoxide into Palladium(II)-Methyl Bonds in Complexes Bearing Bidentate Phosphine Ligands” *Organometallics* **2001**, *20*, 5266-5276.
179. Hicks, F. A.; Brookhart, M.; “A Highly Active Anilinetropone-Based Neutral Nickel(II) Catalyst for Ethylene Polymerization” *Organometallics* **2001**, *20*, 3217-3219.
180. Shultz, L. H.; Tempel, D. J.; Brookhart, M.; “Pd(II) β -Agostic Alkyl Cations and Alkyl Ethylene Complexes: Investigation of Polymer Chain Isomerization Mechanisms” *J. Am. Chem. Soc.* **2001**, *123*, 11539-11555.
181. Shultz, C. S.; DeSimone, J. M.; Brookhart, M.; “Four and Five-Coordinate CO Insertion Mechanisms in d^8 -Nickel(II) Complexes” *J. Am. Chem. Soc.* **2001**, *123*, 9172-9173.
182. Böhm, V.P.W.; Brookhart, M.; “Dehydrocoupling of Phosphanes Catalyzed by a Rhodium(I) Complex” *Angewandte Chemie Int. Ed. Engl.* **2001**, 4694-4696.
183. Reinartz, S.; White, P. S.; Brookhart, M.; Templeton, J. L., “Structural Characterization of an Intermediate in Arene C-H Bond Activation and Measurement of the Barrier to C-H Oxidative Addition: a Platinum(II) η^2 -Benzene Adduct”, *J. Am. Chem. Soc.* **2001**, *123*, 12724-12725.
184. Taw, F. L.; Mellows, H.; White, P. S.; Hollander, F. J.; Bergman, R. G.; Brookhart, M.; Heinekey, D. M., “Synthesis and Investigation of $[\text{Cp}^*(\text{PMe}_3)\text{Rh}(\text{H})(\text{H}_2)]^+$ and its Partially Deuterated and Tritiated Isotopomers: Evidence for a Hydride/Dihydrogen Structure” *J. Am. Chem. Soc.* **2002**, *124*, 5100-5108.
185. Reinartz, S.; Brookhart, M.; Templeton, J. L.; “Platinum(II) and Platinum(IV) Acyl and Formyl Complexes”, *Organometallics* **2002**, *23*, 247-249.
186. Hong, S. C.; Jia, S.; Teodorescu, M.; Kowalewski, T.; Matyjaszewski, K.; Gottfried, A. C.; Brookhart, M.; “Polyolefin Graft Copolymers via Living Polymerization Techniques: Preparation of Poly(*n*-butyl acrylate)-*graft*-polyethylene through the Combination of Pd-Mediated Living Olefin Polymerization and ATRP”, *J. Polym. Sci. Part A: Polym. Chem* **2002**, *40*, 2736-2749.
187. Preishuber-Pflugl, P.; Brookhart, M.; “Highly Active, Supported Nickel Diimine Catalysts for Polymerization of Ethylene”, *Macromolecules* **2002**, *35*, 6074-6076.
188. Taw, F. L.; White, P. S.; Bergman, R. G.; Brookhart, M.; “Carbon-Carbon Bond Activation of R-CH (R = Me, Ar, ^1Pr , ^1Bu) Using a Cationic Rh(III) Complex”, *J. Am. Chem. Soc.* **2002**, *124*, 4192-4193.
- 188B. Johnson, L., Bennett, A., Dobbs, K., Hauptman, E., Ionkin, A., Ittel, S., McCord, E., McLain, S., Radzewich, C., Yin, A., Wang, L., Wang, Y., Brookhart, M., “Copolymerization of Ethylene and

Acrylates by Nickel Catalysts”, *Polymeric Materials: Science & Engineering*, **2002**, *86*, 319.

189. Liu, W.; Malinoski, J. M.; Brookhart, M.; “Ethylene Polymerization and Ethylene/Methyl 10-undecenoate Copolymerization Using Ni(II) and Pd(II) Complexes Derived from a Bulky (P,O) Chelating Ligand”, *Organometallics* **2002**, *21*, 2836-2838.
190. Daugulis, O., White, P. S., Brookhart, M.; “Phosphinidine-Palladium Complexes for the Polymerization and Oligomerization of Ethylene”, *Organometallics* **2002**, *21*, 5935-5943.
191. Daugulis, O., Brookhart, M.; “Polymerization of Ethylene with Cationic Palladium and Nickel Catalysts Containing Bulky Nonenolizable Imine–Phosphine Ligands”, *Organometallics* **2002**, *21*, 5926-5934.
192. Jenkins, J. C.; Brookhart, M.; “A Highly Active Anilinoperinaphthenone-Based Neutral Nickel(II) Catalyst for Ethylene Polymerization”, *Organometallics* **2003**, *22*, 250-256.
193. Leatherman, M. D., Svejda, S. A., Johnson, L. K., Brookhart, M., “Mechanistic Studies of Ni(II) Alkyl Agostic Cations and Alkyl Ethylene Complexes: Investigations of Chain Propagation and Isomerization in (α -Diimine)Ni(II)-Catalyzed Ethylene Polymerization”, *J. Am. Chem. Soc.* **2003**, *125*, 3068-3081.
194. Malinoski, J. M., White, P. S., Brookhart, M., “Structural Characterization of $[\kappa^2\text{-(t-Bu)}_2\text{PCH}_2\text{C(O)C}_6\text{H}_5]\text{PdMe}(\eta^2\text{-C}_2\text{H}_4)^+\text{BAR}'_4^-$: A Model for the Catalyst Resting State for Ethylene Polymerization”, *Organometallics* **2003**, *22*, 621-623.
195. Gottfried, A. C., Brookhart, M., “Living and Block Copolymerization of Ethylene and α -Olefins Using Pd(II)- α -Diimine Catalysts”, *Macromolecules* **2003**, *36*, 3085-3100.
196. Diaz-Requejo, M. M., Brookhart, M., “Synthesis of 1,2-Diheteroatom-Substituted Alkenes via Rhodium-Catalyzed Intramolecular Hydrogen Transfer”, *J. Am. Chem. Soc.* **2003**, *125*, 2038-2039.
197. Jenkins, J. C., Hicks, F. A., Brookhart, M., “Synthesis and Ethylene Polymerization Activity of a Series of 2-Anilino-1-tropone Based Neutral Nickel(II) Catalysts”, *Organometallics* **2003**, *22*, 3533-3545.
198. Taw, F. L., Mueller, A. H., Bergman, R. G., Brookhart, M., “A Mechanistic Investigation of the Carbon-Carbon Bond Cleavage of Aryl and Alkyl Cyanides Using a Cationic Rh(III) Silyl Complex”, *J. Am. Chem. Soc.* **2003**, *123*, 9808-9813.
199. Malinoski, J. M., Brookhart, M., “Polymerization and Oligomerization of Ethylene by Cationic Ni(II) and Pd(II) Complexes Containing Bidentate Phenacyldiarylphosphine Ligands”, *Organometallics* **2003**, *22*, 5324-5335.
200. Daugulis, O., White, P. S., Brookhart, M., “Ethylene Polymerization Using Tetramethyl (2-methylthioethyl)cyclopentadienyl Complexes of Cobalt”, *Organometallics* **2003**, *22*, 4699-4704.

201. Göttker-Schnetmann, I., White, P., Brookhart, M., "Iridium Bis(Phosphinite) p-xPCP Pincer Complexes: Highly Active Catalysts for the Transfer Dehydrogenation of Alkanes", *J. Am. Chem. Soc.* **2004**, *126*, 1804-1811.
202. Daugulis, O., Brookhart, M., "Decarbonylation of Aryl Ketones Mediated by Bulky Cyclopentadienylrhodium bis-Ethylene Complexes", *Organometallics* **2004**, *23*, 527-534.
203. Taw, F. L., Bergman, R. G., Brookhart, M., "Silicon-Hydrogen Bond Activation and Formation of Silane Complexes Using a Cationic Rh(III) Complex", *Organometallics* **2004**, *23*, 886-890.
204. Göttker-Schnetmann, I., White, P., Brookhart, M., "Synthesis and Properties of Iridium Bis(Phosphinite) Pincer Complexes p-XPCPIrH₂, p-XPCPIr(CO), and p-XPCPIr(H)(aryl) And their Relevance in Alkane Transfer Dehydrogenation", *Organometallics* **2004**, *23*, 1766-1776.
205. Jenkins, J. C., Brookhart, M., "A Mechanistic Investigation of the Polymerization of Ethylene Catalyzed by Neutral Ni(II) Complexes Derived From Bulky Anilinetropone Ligands", *J. Am. Chem. Soc.* **2004**, *126*, 5827-5842.
206. Göttker-Schnetmann, I., Brookhart, M., "Mechanistic Studies of the Transfer Dehydrogenation of Cyclooctane Catalyzed by Iridium Bis(Phosphinite) p-XPCP Pincer Complexes", *J. Am. Chem. Soc.* **2004**, *126*, 9330-9338.
207. Liu, W., Brookhart, M., "Mechanistic Studies of Pd(II)-a-Diimine-Catalyzed Polymerizations of cis-and trans-2-Butenes", *Organometallics* **2004**, *23*, 6099-6107.
208. Corkey, B. K., Taw, F. L., Bergman, R. G., Brookhart, M., "Aromatic and Aldehyde Carbon-Hydrogen Bond Activation at Cationic Rh(III) Centers. Evaluation of Electronic Substituent Effects on Aldehyde Binding and C-H Oxidative Addition", *Polyhedron* **2004**, *23*, 2943-2954.
209. Karafilidis, C., Hermann, H., Ruffiniska, A., Gabor, B., Mynott, R. J., Breitenbruch, G., Weidenthaler, C., Rust, J., Jopek, W., Brookhart, M. S., Thiel, W., Fink, G., "Metallocene-Catalyzed C7-Linkage in the Hydrooligomerization of Norbornene by σ -Bond Metathesis: Insight into the Microstructure of Polynorbornene", *Angew. Chem.* **2004**, *43*, 2444-2446.
210. Williams, B. S., Leatherman, M. D., White, P. S., Brookhart, M., "Reactions of Vinyl Acetate and Vinyl Trifluoroacetate With Cationic Diimine Pd(II) and Ni(II) Alkyl Complexes: Identification of Problems Connected with Copolymerizations of these Monomers with Ethylene", *J. Am. Chem. Soc.* **2005**, *127*, 5132-5146.
211. Diaz-Requejo, M. M.; Wehrmann, P.; Leatherman, M. D.; Trofimenko, S.; Mecking, S.; Brookhart, M.; Perez, P. J., "Controlled, Copper-Catalyzed Functionalization of Polyolefins", *Macromolecules* **2005**, *38*, 4966-4969.
212. Broene, R. D., Lamanna, W. M., Volpe, A. F., Brookhart, M., "Cobalt Catalyzed Dimerization of α -Olefins to give Linear α -Olefin Products", *J. Am. Chem. Soc.* **2005**, *127*, 17194-17195.

213. Sykes, A. C., White, P., Brookhart, M., "Reactions of Anilines and Benzamides with a Fourteen-Electron Iridium(I) Bis(Phosphinite) Complex: N-H Oxidative Addition versus Lewis Base Coordination", *Organometallics*, **2006**, *25*, 1664-1675.
214. Zhang, L., White, P. S., Brookhart, M., "Synthesis, Characterization and Ethylene Polymerization Activities of Neutral Nickel(II) Complexes Derived From Anilino-substituted Enone Ligands Bearing Trifluoromethyl and Trifluoroacetyl Substituents", *Organometallics*, **2006**, *25*, 1868-1874.
215. Goldman, A. S., Roy, A. H., Huang, Z., Ahuja, R., Schinski, W., Brookhart, M., "Catalytic Alkane Metathesis by Tandem Alkane Dehydrogenation–Olefin Metathesis", *Science*, **2006**, *312*, 257-261.
216. Schrekker, H. S., Kotov, V., Preishuber-Pflugl, P., White, P., Brookhart, M., "Efficient Slurry-Phase Homopolymerization of Ethylene to Branched Polyethylenes Using α -Diimine Nickel(II) Catalysts Covalently Linked to Silica Supports", *Macromolecules*, **2006**, *39*, 6341-6354.
217. Tempel, D., Killian, C. M., Johnson, L. K., Brookhart, M., McCord, E. F., McLain, S. J., Nelson, L. T., Ittel, S. D., "¹³C NMR Analysis of α -Olefin Enchainment in Poly(α -Olefins) Produced with Nickel and Palladium α -Diimine Catalysts", *Macromolecules*, **2007**, *40*, 410-420.
218. Bolig, A. D., Brookhart, M., Domski, G. J., Rose, J. M., Coates, G. W., "Living Alkene Polymerization: New Methods for the Precision Synthesis of Polyolefins", *Progress in Polymer Science*, **2007**, *32*, 30-92.
219. Göttker-Schnetmann, I., Heinekey, D. M., Brookhart, M., "Temperature and Solvent Dependent Binding of Dihydrogen in Iridium Pincer Complexes", *J. Am. Chem. Soc.*, **2006**, *128*, 17114-17119.
220. Roy, A. H., Lenges, C. P., Brookhart, M., "Scope and Mechanism of the Intermolecular Addition of Aromatic Aldehydes to Olefins Catalyzed by Rh(I) Olefin Complexes", *J. Am. Chem. Soc.*, **2007**, *129*, 2082-2093.
221. Doherty, M. D., Trudeau, S., White, P. S., Morken, J. P., Brookhart, M., "Ethylene Oligomerization Catalyzed by a Unique Phosphine-oxazoline Pd(II) Complex. Propagation and Chain Transfer Mechanisms", *Organometallics*, **2007**, *26*, 1261-1269.
222. Shiotsuki, M., White, P. S., Brookhart, M., Templeton, J. L., "Mechanistic Studies of Platinum(II)-Catalyzed Ethylene Dimerization. Determination of Barriers to Migratory Insertion in Diimine Pt(II) Hydrido Ethylene Intermediates", *J. Am. Chem. Soc.* **2007**, *129*, 4058-4067.
223. Brookhart, M., Green, A. L. H., Parkin, G., "Agostic Interactions in Transition Metal Compounds", *Proc. Natl. Acad. Sci.*, **2007**, *104*, 6908-6914.
224. O'Connor, A. R., Brookhart, M., White, P. S., "The Mechanism of Polymerization of Butadiene by "Ligand-Free" Ni(II) Complexes", *J. Am. Chem. Soc.*, **2007**, *129*, 4142-4143.
225. Doherty, M. D., Grant, B., White, P. S., Brookhart, M., "Reactions of H₂ and R₃SiH with Electrophilic Cobalt(III) Alkyl Complexes: Spectroscopic Characterization, Dynamics and

Chemistry of $[\text{Cp}^*\text{Co}(\text{L})(\text{H})(\eta^2\text{-H}_2)][\text{B}(\text{Ar}_\text{F})_4]$ and $[\text{Cp}^*\text{Co}(\text{L})(\text{H})(\eta^2\text{-HSiR}_3)][\text{B}(\text{Ar}_\text{F})_4]$ ”, *Organometallics*, **2007**, 26, 5950-5960.

226. Bolig A. D., Brookhart, M., “Activation of sp^3 C-H Bonds with Cobalt(I): Catalytic Synthesis of Enamines”, *J. Am. Chem. Soc.*, **2007**, 129, 14544-14545.
227. Yang, J., Brookhart, M., “Iridium-catalyzed Reduction of Alkyl Halides by Triethylsilane”, *J. Am. Chem. Soc.*, **2007**, 129, 12656-12657.
228. Bernskoetter, W., Brookhart, M., “Kinetics and Mechanism of Iridium Catalyzed Dehydrogenation of Primary Amines to Nitriles”, *Organometallics*, **2008**, 27, 2036-2045.
229. Yang, J., White, P. S., Schauer, C. K., Brookhart, M., “Structural and Spectroscopic Characterization of a Transition Metal η^1 -Silane Complex”, *Angew. Chem. Int. Ed*, **2008**, 47, 4141-4143.
230. Ahuja, R., Kundu, S., Goldman, A. S., Brookhart, M., Vicente, B. C., Scott, S. L., “Catalytic Ring Expansion, Contraction, and Metathesis-Polymerization of Cycloalkanes”, *Chem. Commun.*, **2008**, 234-255.
231. Yang, J., White, P. S., Brookhart, M., “Scope and Mechanism of the Iridium-Catalyzed Cleavage of Alkyl Ethers with Triethylsilane”, *J. Am. Chem. Soc.*, **2008**, 130, 17509-17518.
232. Yang, J., Brookhart, M., “Reduction of Alkyl Halides by Triethylsilane Based on a Cationic Iridium Bis(phosphinite) Pincer Catalyst: Scope, Selectivity and Mechanism”, *Advanced Synthesis & Catalysis*, **2009**, 351, 175-187.
233. Huang, Z., Brookhart, M., Goldman, A. S., Kundu, S., Ray A., Scott S. L., Vicente, B. C., “Highly Active and Recyclable Heterogeneous Iridium Pincer Catalysts for Transfer Dehydrogenation of Alkanes”, *Advanced Synthesis & Catalysis*, **2009**, 351, 188-206.
234. O’Connor, A.R., Urbin, S.A., Moorhouse, R.A., White, P.S., Brookhart, M., “Synthesis and Reactivity of (Allyl)Nickel(Arene)⁺ Complexes”, *Organometallics*, **2009**, 28, 2372-2384.
235. Walter, M.D., Moorhouse, R.A., White, P.S., Brookhart, M., “Vinyl Addition Polymerization of Norbornene with Cationic (ally)Ni Catalysts: Mechanistic Insights and Characterization of First Insertion Products”, *J. Polym. Sci. Part A: Polym. Chem*, **2009**, 47, 2560-2573.
236. Edson, J. B., Domski, G. J., Rose, J. M., Bolig, A. D., Brookhart, M., Coates, G. W., “Living transition metal-catalyzed alkene polymerization: polyolefin synthesis and new polymer architectures” *Controlled Living Polym*, **2009**, 167-239.
237. Bernskoetter, W. H., Hanson, S. K., Buzak, S. K., Davis, Z., White, P. S., Swartz, R., Goldberg K. I., Brookhart, M., “Investigations of Iridium Mediated Reversible C–H Bond Cleavage: Characterization of a 16-Electron Iridium(III) Methyl Hydride Complex”, *J. Am. Chem. Soc.*, **2009**, 131, 8603-8613.
238. Bailey, B. C., Schrock, R. R., Kundu, S., Goldman, A. S., Huang, Z., Brookhart, M., “Evaluation of

- Molybdenum and Tungsten Metathesis Catalysts for Homogeneous Tandem Alkane Metathesis”, *Organometallics*, **2009**, *28*, 355-360.
239. Walter, M.D., Moorhouse, R.A., Urbin, S.A., White, P.S., Brookhart, M., “ γ -Agostic Species as Key Intermediates in the Vinyl Addition Polymerization of Norbornene with Cationic (allyl)Pd Catalysts: Synthesis and Mechanistic Insights”, *J. Am. Chem. Soc.*, **2009**, *131*, 9055-9069.
240. Rix, F.C., Rachita, M. J., Wagner, Brookhart, M., Milani, B., Barborak, J.C., Palladium(II)-Catalyzed Copolymerization of Styrenes with Carbon Monoxide: Mechanism of Chain Propagation and Chain Transfer”, *Dalton Transactions*, **2009**, *41*, 8977-8992.
241. Bernskoetter, W. H., Goldberg, K. I., Schauer, C., Brookhart, M., “Characterization of a Rhodium(I) σ -Methane Complex in Solution”, *Science*, **2009**, *326*, 553-556.
242. Huang, A., Rolfe, E., Carson, E. C., Brookhart, M., Goldman, A. S., El-Khalafy, S. H., Roy MacArthur, A. H., “Efficient Heterogeneous Dual Catalyst Systems for Alkane Metathesis”, *Advanced Synthesis and Catalysis*, **2010**, *352*, 125-135.
243. Kundu, S., Choliy, Y., Zhuo, G., Ahuja, R., Emge, T. J., Warmuth, R., Brookhart, M., Krogh-Jespersen, K., Goldman, A. S., “Rational Design and Synthesis of Highly Active Pincer-Iridium Catalysts for Alkane Dehydrogenation”, *Organometallics*, **2009**, *28*, 5432-5444.
244. Walter, M. D., White, P. S., Brookhart, M., “ γ -Agostic Interactions Stabilize the Propagating Species in the Vinyl Addition Polymerization of Norbornene”, *Chem. Commun.*, **2009**, *42*, 6361-6363.
245. O’Connor, A. R., Brookhart, M., “Polymerization of 1,3-Dienes and Styrene Catalyzed by Cationic Allyl Ni(II) Complexes”, *J. Polym. Sci. Part A: Polym. Chem*, **2010**, *48*, 1901-1912.
246. Findlater, M., Bernskoetter, W. H., Brookhart, M., “Proton-Catalyzed Hydrogenation of a d^8 Ir(I) Complex Yields a *trans* Ir(III) Dihydride”, *J. Am. Chem. Soc.*, **2010**, *132*, 4534-4535.
247. O’Connor, A. R., White, P. S., Brookhart, M., “Synthesis, Characterization, and Reactivity Studies of (Cyclohexenyl)Ni(II) Complexes”, *Organometallics*, **2010**, *29*, 5382-5389.
248. Huang, Z., White, P. S., Brookhart, M., “Ligand Exchanges and Selective Catalytic Hydrogenation in Molecular Single Crystals”, *Nature*, **2010**, *465*, 598-601.
249. Park, S., Brookhart, M., “Hydrosilation of Carbonyl-Containing substrates Catalyzed by an Electrophilic η^1 -Silane Iridium(III) Complex”, *Organometallics*, **2010**, *29*, 6057-6064.
250. Ahuja, R., Punji, B., Findlater, M., Supplee, C., Schinski, W., Brookhart, M., Goldman, A. S., “Catalytic dehydroaromatization of n-alkanes by pincer-ligated iridium complexes”, *Nature Chemistry*, **2011**, *3*, 167-171.
251. Urbin, S. A., Pintauer, T., White, P., Brookhart, M., “Synthesis, Characterization, and Reactivity of (π -Allyl)Palladium(II) Wrap-Around Complexes with 1,3-Dienes”, *Inorganica Chimica Acta*, **2011**, *369*, 150-158. (R. G. Bergman tribute issue).

252. Vicente, B. C., Huang, Z., Brookhart, M., Goldman, A. S., Scott, S. L., "Reactions of Phosphinites With Alumina and Silica: A New Method for Anchoring Organic and Organometallic Complexes on Oxide Surfaces", *Dalton Trans.*, **2011**, 40, 4268-4274.
253. Park, S., Brookhart, M., "Hydrosilylation of Epoxides Catalyzed by a Cationic η^1 -Silane Iridium(III) Complex", *Chem. Commun.*, **2011**, 47, 3643-3645.
254. Choi, J., MacArthur, A. H. R., Brookhart, M., Goldman, A. S., "Dehydrogenation and Related Reactions Catalyzed by Iridium Pincer Complexes", *Chem. Rev.*, **2011**, 1761-1779.
255. Cheng, C., Guironnet, D., Barborak, J., Brookhart, M., "Preparation and Characterization of Conjugated Polymers Made by Post-polymerization Reaction of Alternating Polyketones", *J. Am. Chem. Soc.*, **2011**, 133, 9658-9661.
256. Findlater, M., Cartwright-Sykes, A., White, P. S., Schauer, C. K., Brookhart, M., "Role of Coordination Geometry in Dictating the Barrier to Hydride Migration in d^6 Square Pyramidal Iridium and Rhodium Pincer Complexes", *J. Am. Chem. Soc.*, **2011**, 133, 12274-12284.
257. Walter, M. D., White, P. S., Schauer, C. K., Brookhart, M., "The Quest for Stable σ -Methane Complexes: Computational and Experimental Studies", *New J. Chem.*, **2011**, 35, 2884-2893.
258. Chen, Z., Chuncheng, C., Weinberg, D. R., Kang, P., Concepcion, J. J., Harrison, D. P., Brookhart, M., Meyer, T. J., "Electrocatalytic reduction of CO_2 to CO by polypyridyl ruthenium complexes", *Chem. Commun.*, **2011**, 47, 12607-12609.
259. Cochrane, N. A., Brookhart, M. S., Gagné, M. R., "Driving Catalyst Reoxidation in Wacker Cyclizations with Acetal-Based Metal-Hydride Abstractors", *Organometallics*, **2011**, 30, 2457-2460.
260. Park, S., Kim, B. G., Gottker-Schnetmann, I., Brookhart, M., "Redistribution of Trialkyl Silanes Catalyzed by Iridium Silyl Complexes", *ACS Catal.*, **2012**, 2, 307-316.
261. Park, S., Brookhart, M., "Development and Mechanistic Investigation of a Highly Efficient Ir(V) Silyl Complex for the Reduction of Tertiary Amides to Amines", *J. Am. Chem. Soc.*, **2012**, 134, 640-653.
262. Findlater, M., Schultz, D. M., Bernskoetter, W. H., Cartwright-Sykes, A., Heinekey, D. M., Brookhart, M., "Dihydrogen Complexes of Iridium and Rhodium", *Inorg. Chem.* **2012**, 51, 4672-4678.
263. Kang, P., Cheng, C., Chen, Z., Schauer, C. K., Meyer, T. J., Brookhart, M., "Selective Electrocatalytic Reduction of CO_2 to Formate by Water-Stable Iridium Dihydride Pincer Complexes", *J. Am. Chem. Soc.*, **2012**, 134, 5500-5503.
264. Cheng, C., Brookhart, M., "Iridium-Catalyzed Reduction of Secondary Amides to Secondary Amines and Imines by Diethylsilane", *J. Am. Chem. Soc.*, **2012**, 134, 11304-11307.

265. Biswas, S., Huang, Z., Choliy, Y., Wang, D., Brookhart, M., Krogh-Jespersen, K., Goldman, A. S., “Olefin Isomerization by Iridium Pincer Catalysts. Experimental Evidence for an η^3 -Allyl Pathway And an Unconventional Mechanism Predicted by DFT Calculation”, *J. Am. Chem. Soc.*, **2012**, *134*, 13276-13295.
266. Haibach, M. C., Kundu, S., Brookhart, M., Goldman, A. S., “Alkane Metathesis by Tandem Alkane–Dehydrogenation-Olefin- Metathesis Catalysis and Related Chemistry”, *Acc. Chem. Res.*, **2012**, *45*, 947-958.
267. Cheng, C., Brookhart, M., “Efficient Reduction of Esters to Aldehydes via Iridium-Catalyzed Hydrosilylation”, *Angewandte Chemie*, **2012**, *51*, 9422-9424.
268. Park, S., Bézier, D., Brookhart, M., “ An Efficient Iridium Catalyst for Reduction of Carbon Dioxide to Methane with Trialkylsilanes” *J. Am. Chem. Soc.*, **2012**, *134*, 11404-11407.
269. Lyons, T. W., Guironnet, D., Findlater, M., Brookhart, M., “Synthesis of p-Xylene from Ethylene”, *J. Am. Chem. Soc.*, **2012**, *134*, 15708-15711.
270. Findlater, M., Choi, J., Goldman, A. S., Brookhart, M., “Alkane Dehydrogenation in *Alkane C-H Activation by Single-Site Metal Catalysis*”, Perez, P. J., Ed.; Springer: New York, **2012**, Catalysis By Metal Complexes, Vol. 38.
271. Wingard, L. A., Finnis, M. C., White, P. S., Brookhart, M., Templeton, J. L., “Synthesis, Structure, and Reactivity of Iridium(III) Complexes Containing a 4,6-Dimethyl-1, 3- benzenediphenylimine Pincer Ligand”, *Inorganic Chemistry*, **2013**, *52*, 515-526.
272. Campos, J., Kundu, S., Pahls, D. R., Brookhart, M., Carmona, E., Cundari, T. R., “Mechanism of Hydrogenolysis of an Iridium-Methyl Bond: Evidence for a Methane Complex Intermediate”, *J. Am. Chem. Soc.*, **2013**, *135*, 1217-1220.
273. Bézier, D., Park, S., Brookhart, M., “Selective Reduction of Carboxylic Acids To Aldehydes catalyzed by $B(C_6F_5)_3$ ”, *Organic Letters*, **2013**, *15*, No. 3, 496-499.
274. Walter, M. D., White, P. S., Brookhart, M., “Synthesis, Structure and Computational Studies on a Cationic T-shaped Pd-Complex”, *New J. Chem.*, **2013**, *37*, 1128-1133.
275. Campos, J., Peloso, R., Brookhart, M., Carmona, E., “A Cationic Terminal Methylene Complex of Ir(I) Supported By a Pincer Ligand”, *Organometallics*, **2013**, *32*, 3423-3426.
276. Kundu, S., Lyons, T., Brookhart, M., “Synthesis of Piperylene and Toluene via Transfer Dehydrogenation of Pentane and Pentene”, *ACS Catalysis*, **2013**, *3*, 1768-1773.
<http://dx.doi.org/10.1021/cs400398w>.
277. Kang, P., Meyer, T. J., Brookhart, M., “Selective Electrocatalytic Reduction of Carbon Dioxide to Formate by a Water-Soluble Iridium Pincer Catalyst”, *Chemical Science*, **2013**, *4*, 3497-3502.

278. Zhang, D., Nadres, E. T., Daugulis, O., Brookhart, M., "Synthesis of Highly Branched Polyethylene Using "Sandwich" (8-p-Tolyl Naphthyl α -Diimine) Nickel(II) Catalysts", *Organometallics*, **2013**, *32*, 5136-5143.
279. Schauer, C., Brookhart, M., Walter, M., White, P., "Stability and Dynamic Processes in 16VE Iridium(III) Ethyl Hydride & Rhodium(I) σ -Ethane Complexes: Experimental and Computational Studies", *J. Am. Chem. Soc.*, **2013**, *135*, 15933-15947.
280. Lyons, T. W., Brookhart, M., "Cobalt-Catalyzed Hydrosilation/Hydrogen Transfer Cascade: A New Route to Silyl Enol Ethers", *Chem. Eur. J.*, **2013**, *19*, 10124-10127.
281. Turlington, C. R., Harrison D. P., White, P. S., Brookhart, M., Templeton, J. L., "Probing the Oxidation Chemistry of Half-Sandwich Iridium Complexes with Oxygen Atom Transfer Reagents", *Inor. Chem.*, **2013**, *52*, 11351-11360.
282. Nawara-Hultzsch, A. J., Hackenberg, J. D., Punji, B., Supplee, C., Emge, T. J., Bailey, B. C., Schrock, R. R., Brookhart, M., Goldman, A. S., "Rational Design of Highly Active "Hybrid" Phosphine-Phosphinite Pincer Iridium Catalysts for Alkane Metathesis", *ACS Catalysis*, **2013**, *3*, 2505-2514.
283. Kang, P., Zhang, S., Meyer, T. J., Brookhart, M., "Rapid Selective Electrocatalytic Reduction of Carbon Dioxide to Formate by an Iridium Pincer Catalyst Immobilized on Carbon Nanotube Electrodes", *Angew. Chem. I.E.*, **2014**, *126*, 8853-8857.
284. Turlington, C. R., White, P. S., Brookhart, M., Templeton, J. L., "Oxygen Atom Transfer to a Molecular Half-Sandwich Iridium Complex: Clean Oxidation Yielding a Molecular Product", *J. Am. Chem. Soc.*, **2014**, *136*, 3981-3994.
285. Kang, P., Chen, Z., Brookhart, M., Meyer, T. J., "Electrocatalytic Reduction of Carbon Dioxide. Let the Molecules Do the Work", *Topics in Catalysis*, **2014**, *58*, 30-45.
286. Cheng, C., Kim, B. G., Guironnet, D., Brookhart, M., Guan, C., Wang, D. Y., Krogh-Jespersen, K., Goldman, A. S., "Synthesis and Characterization of Carbazolide-based Iridium PNP Pincer Complexes. Mechanistic and Computational Investigation of Alkene Hydrogenation: Evidence for an Ir(III) Ir(V)/Ir(III) Catalytic Cycle", *J. Am. Chem. Soc.*, **2014**, *136*, 6672-6683.
287. Bézier, D., Brookhart, M., "Applications of PC(sp³)P Iridium Complexes in Transfer Dehydrogenation of Alkanes", *ACS Catal.*, **2014**, *4*, 3411-3420.
288. Chen, Z., Mesgar, M., White, P. S., Daugulis, O., Brookhart, M., "Synthesis of Branched Ultrahigh-Molecular-Weight Polyethylene Using Highly Active Neutral, Single-Component Ni(II) Catalysts", *ACS Catal.*, **2015**, *5*, 631-636.
289. Allen, K. A., Campos, J., Daugulis, O., Brookhart, M., "Living Polymerization of Ethylene and Copolymerization of Ethylene/Methyl Acrylate Using "Sandwich" Diimine Palladium Catalysts", *ACS Catal.*, **2015**, *5*, 456-464.

290. Bézier, D., Brookhart, M., "Transfer Dehydrogenations of Alkanes and Related Reactions using Iridium Pincer Complexes" in *C-H Bond Activation and Catalytic Functionalization II*, *Topics in Organometallic Chemistry*, Eds. Dixneuf, P.H., Doucet, H., Springer, **2016**
291. Lyons, T., Bezier, D., Brookhart, M., "Iridium Pincer-Catalyzed Dehydrogenation of Ethers Featuring Ethylene as the Hydrogen Acceptor", *Organometallics*, **2015**, *34*, 4058-4062.
292. Turlington, C. R., White, P. R., Brookhart, M., Templeton, J. L., "Sequential Nitrene Transfers to an Organometallic Half-Sandwich Iridium Complex", *Organometallics*, **2015**, *34*, 4810-4812.
293. Bolig, A. D., Lyons, T. W., DiSalvo, D. T., Brookhart, M., "Intramolecular Hydrogen Transfer Reactions Catalyzed by Pentamethylcyclopentadiene Rhodium and Cobalt Complexes", *Polyhedron*, **2016**, *103*, 51-57. (Invited submission, Malcolm Chisholm tribute issue)
294. Yao, W., Jia, X., Leng, X., Goldman, A. S., Brookhart, M., Huang, Z., "Catalytic Alkane Transfer-Dehydrogenation by PSCOP Iridium Pincer Complexes", *Polyhedron*, **2016**, *116*, 12-19. (Invited Submission, M. L. H. Green tribute issue)
295. Chen, Z., Allen, K. E., White, P. S., Daugulis, O., Brookhart, M., "Synthesis of Branched Polyethylene with "Half-Sandwich" Pyridine Nickel Complexes", *Organometallics*, **2016**, *35*, 1756-1760.
296. Bézier, D., Guan, C., Krogh-Jespersen, K., Goldman, A. S., Brookhart, M., "Experimental and Computational Study of Alkane Dehydrogenation Catalyzed by a Carbazolide-based Rhodium PNP Pincer Complex", *Chem. Sci.*, **2016**, *7*, 2579-2586.
297. Chen, Z., Liu, W., Daugulis, O., Brookhart, M., "Mechanistic Studies of Pd(II)-Catalyzed Copolymerization of Ethylene and Vinylalkoxysilanes: Evidence for a β -Silyl Elimination Chain Transfer Mechanism", *J. Am. Chem. Soc.*, **2016**, *138*, 16120-19129.
298. Kocen, L. A., Klimovica, K., Brookhart, M., Daugulis, O., "Alkene Isomerization by "Sandwich" Diimine-Palladium Catalysts" *Organometallics*, **2017**, *35*, accepted.
299. Bézier, D., Daugulis, O., Brookhart, M., "Oligomerization of Ethylene Using a Diphosphine Palladium Catalyst" *Organometallics*, **2017**, *35*, 443-447.

