

Curriculum Vitae

PETER W. RABIDEAU

*Provost and Vice President for Academic Affairs
Mississippi State University*

Address: Office of Academic Affairs
Mississippi State University
P.O. Box BQ
Mississippi State, MS 39762

Ph/e-mail: 662-325-3742
FAX 662-325-4039
e-mail - prabideau@provost.msstate.edu

PERSONAL

Married to Jennifer L. Mooney; two children (Mark, 17; Leah, 15)
Home Address: 105 Derbyshire Road, Starkville, MS 39759
Home Phone 662-324-7778

EDUCATION

Case Western Reserve University, Ph.D.; Organic Chemistry, 1968
Case Institute of Technology, M.S.; Chemistry, 1967
Loyola University of Chicago, B.S.; Chemistry, 1964
University of Chicago; Postdoctoral Associate, 1968

EXPERIENCE

Mississippi State University

Provost and Vice President for Academic Affairs
Professor of Chemistry 2003 –

Iowa State University

Dean of the College of Liberal Arts and Sciences;
Professor of Chemistry; Group Leader, Ames Laboratory 1999 – 2003

Louisiana State University

Dean of the College of Basic Sciences
and Professor of Chemistry 1990 – 1999

Indiana University, Indianapolis (IUPUI)

Chairperson of the Chemistry Department 1985 – 1990
Acting Chairperson of the Chemistry Department 1978 / 1980
Professor of Chemistry 1976 – 1990
Associate Professor of Chemistry 1973 – 1976
Assistant Professor of Chemistry 1970 – 1973

National Science Foundation

Program Officer for Organic Dynamics 1988

UCLA - Sabbatical Leave	1987
University of Chicago - Instructor	1969

AWARDS AND HONORS

Alumnus of the Year Award, Case Western Reserve University, Department of Chemistry, 2001

Elected to rank of Fellow – American Association for the Advancement of Science (AAAS), 1997

Research Award, Purdue University School of Science at Indianapolis, 1982

"Who's Who in America," inclusion in the 45th through 59th Editions

"Who's Who in America, Science and Engineering"

"Who's Who in the Midwest" "Who's Who in the South and Southwest"

Honor Societies: Phi Kappa Phi, Sigma Xi

NATIONAL COMMITTEES AND APPOINTMENTS

- American Chemical Society, Indiana Section Councilor, 1981-1990
- American Chemical Society, Society Committee on Publications (SCOP), 1981-1991
- American Chemical Society, Chairman, SCOP Subcommittee on Planning, 1988-1991
- American Chemical Society, Task Force to monitor the ACS publication *Analytical Chemistry*, 1983.
- American Chemical Society, Task Force to select an editor for journal *Chemistry and Energy*, 1985.
- Member, Council of Colleges of Arts and Sciences, Committee on Internationalization of Education, 1994-1995
- Member, National Science Foundation Panel, Presidential Young Investigators Award Selection, 1994
- Science Dean's Colloquium, American Association for the Advancement of Science, Washington, D.C., Sept, 1994
- Member, National Science Foundation Panel, Integrative Graduate Education and Research Training Program, Washington, D.C., 1997
- Member, National Science Foundation Panel, Integrative Graduate Education and Research Training Program (IGERT), Washington, D.C., 1998
- ISU Administrative Representative to the University Corporation for Atmospheric Research (UCAR), Boulder, Colorado
- National Research Council, National Academy of Sciences, Workshop: Women in the Chemical Workforce, Washington, 4/00
- AAU Arts & Sciences Dean's Council, Berkeley, CA, 2002. Panelist: (1) "The Place of Liberal Arts in Undergraduate Education," (2) "Interactions between A&S and Education Deans."
- Member, U.S. DOE Chemical Sciences Program Review Team to Assess "Chemistry of Complex Organic Energy Resources", Oak Ridge National Laboratory, 2001.
- Member, U.S. DOE Chemical Sciences Program Review Team to Assess "Chemical Transformation Mechanisms", Argonne National Laboratory, 2003.
- One of Three Judges for the Chemistry Category, 2004 Lawrence Award given by the US Secretary of Energy

BIBLIOGRAPHY – REFEREED PUBLICATIONS

1. L. Friedman and P. W. Rabideau, "Thermolysis Reactions of Biphenylene," *The Journal of Organic Chemistry*, **33**, 451 (1968).
2. P. W. Rabideau, J. B. Hamilton and L. Friedman, "Photoisomerization of Mono- and Dibenzobarrelenes," *The Journal of The American Chemical Society*, **90**, 4465 (1968).

3. L. Friedman, R. J. Osiewicz and P. W. Rabideau, "The Course of Addition of Benzyne to *cis*- and *trans*-Acetoxy- and Methoxypropene," *Tetrahedron Letters*, **55**, 5735 (1968).
4. P. W. Rabideau, R. G. Harvey and J. B. Stothers, "Ring Inversion in 9,10-Disubstituted-9,10-Dihydrophenanthrenes," *Journal of the Chemical Society, Chemical Communications*, 1005 (1969).
5. P. W. Rabideau and R. G. Harvey, "Metal Ammonia Reductions. Stereospecific Reduction in the Phenanthrene Series," *The Journal of Organic Chemistry*, **35**, 25 (1970).
6. A. W. Brinkman, M. Gordon, R. G. Harvey, P. W. Rabideau, J. B. Stothers and A. L. Ternay, "Stereochemistry of 9-alkyl-9,10-Dihydroanthracenes. Conformation by Nuclear Overhauser Enhancements and Long-Range Coupling Constants," *Journal of the American Chemical Society*, **92**, 5912 (1970).
7. R. G. Harvey and P. W. Rabideau, "Regiospecific Reduction of Pyrene to 1,9-Dihdropyrene," *Tetrahedron Letters*, 3695 (1970).
8. P. W. Rabideau and R. G. Harvey, "Metal Ammonia Reduction. A Novel Metal Effect in the Reductive Methylation of Naphthalene," *Tetrahedron Letters*, 4139 (1970).
9. P. W. Rabideau, "The Question of Ring Inversion in 2,3,6,7-Tetramethoxy-9, 10-dihydroanthracene," *The Journal of Organic Chemistry*, **36**, 2723 (1971).
10. J. Pataki, C. Duguid, P. W. Rabideau, H. Husiman and R. G. Harvey, "Carcinogenic and Adrenocorticytic Derivatives of Benz(a)anthracene," *The Journal of Medicinal Chemistry*, **14**, 940 (1971).
11. R. G. Harvey, D. F. Lindow and P. W. Rabideau, "Metal Ammonia Reduction. Regiospecificity of Reduction and Reductive Methylation in the Terphenyl Series," *Journal of the American Chemical Society*, **94**, 5412 (1972).
12. R. G. Harvey, D. F. Lindow and P. W. Rabideau, "Metal Ammonia Reduction. Fluoranthene: Correlation of Primary Product Structure with HMO Theoretical Prediction," *Tetrahedron*, 2909 (1972).
13. T. W. Cutshall and P. W. Rabideau, "The Discrepancy Concerning the Infrared Spectra of Dibenzo[*a,e*]cyclooctatetraene," *Canadian Journal of Chemistry*, **50**, 2364 (1972).
14. P. W. Rabideau and J. W. Paschal, "Stereochemistry of 9,10-Dihydro-anthracenes. Preferred Conformations in *cis*-9,10-Dialkyl Derivatives," *Journal of the American Chemical Society*, **94**, 5801 (1972).
15. T. A. Elwood, W. R. Flack, K. J. Inman and P. W. Rabideau, "The Question of Anomalies in the Friedel-Crafts Acylation of Haloalkylbenzenes. Acetylation of the Isomeric Bromo-*m*-Xylenes," *Tetrahedron*, **30**, 535 (1974).
16. J. W. Paschal and P. W. Rabideau, "The Stereochemistry of 1,4-Cyclohexadienes. Confirmation via Rare Earth Shift Reagents," *Journal of the American Chemical Society*, **96**, 272 (1974).
17. P. P. Fu, R. G. Harvey, J. W. Paschal and P. W. Rabideau, "Stereochemistry of 9,10-Dialkyl-9,10-dihydroanthracene and 9-Alkyl-10-lithio-9,10-dihydroanthracene," *Journal of the American Chemical Society*, **96**, 272 (1974).
18. H. Cho, R. G. Harvey and P. W. Rabideau, "9-Isopropylidene-9,10-dihydro-anthracene. Synthesis, Stereochemistry, and the Effect of 10-Alkyl Group Size on the Equilibrium with 9-Isopropyl-10-alkylanthracene," *Journal of the American Chemical Society*, **97**, 1140 (1975).

19. R. G. Harvey, P. P. Fu and P. W. Rabideau, "Regioselectivity of Reduction and Reductive Alkylation in the Fluorene Series," *The Journal of Organic Chemistry*, **41**, 2706 (1976).
20. R. G. Harvey, P. P. Fu and P. W. Rabideau, "Stereochemistry of 1,3-Cyclo-hexadienes. Conformational Preferences in 9-Substituted 9,10-Dihydrophenanthrenes," *The Journal of Organic Chemistry*, **41**, 3722 (1976).
21. P. W. Rabideau, J. W. Paschal and J. L. Marshall, "NMR Conformational Analysis of 1,4-Cyclohexadienes," *Journal of the Chemical Society, Perkin II*, 842 (1977).
22. P. W. Rabideau, J. W. Paschal and D. W. Jessup, "Metal-Ammonia Reduction of Fluorinated Aromatic Compounds," *The Journal of Organic Chemistry*, **42**, 2620 (1977).
23. P. W. Rabideau, M. Yates and E. G. Burkholder, "NMR Conformational Analysis of 1,4-Dihydronaphthalenes," *Journal of the American Chemical Society*, **99**, 3596 (1977).
24. P. W. Rabideau and E. G. Burkholder, "Metal-Ammonia Reduction and Reductive Alkylation of Polycyclic Aromatic Compounds: Nature of the Anionic Intermediates," *The Journal of Organic Chemistry*, **43**, 4283 (1978).
25. P. W. Rabideau, D. K. Parikh and R. R. Watson, "Carbon-13 Nuclear Magnetic Resonance of Pyrimidine Nucleosides Containing the Branched-Chain Sugar, Apiose," *Carbohydrate Nucleosides and Nucleotides*, **5**, 537 (1978).
26. P.W. Rabideau, "The Conformational Analysis of 1,4-Cyclohexadienes: 1,4-Dihydrobenzenes, 1,4-Dihydronaphthalenes and 9,10-Dihydroanthracenes," *Accounts of Chemical Research*, **11**, 141 (1978).
27. P. W. Rabideau and E. G. Burkholder, "Concerning the Stereochemistry of Reductive Alkylation of Anthracene and Naphthalene," *The Journal of Organic Chemistry*, **44**, 2354 (1979).
28. P. W. Rabideau, D. W. Jessup, J. W. Ponder and G. F. Beekman, "Metal-Ammonia Reduction of Triptycene and Related Benzobarrelene Derivatives," *The Journal of Organic Chemistry*, **44**, 4594 (1979).
29. P. W. Rabideau, S. J. Nyikos, D. L. Huser and E. G. Burkholder, "Concerning the Metal-Ammonia Reduction of Biphenyl-4-carboxylic Acid," *Journal of the Chemical Society, Chemical Communications*, 210 (1980).
30. P. W. Rabideau, D. L. Huser and S. J. Nyikos, "Metal-Ammonia Reduction: The Ring Reduction of Aromatic Carboxylic Esters," *Tetrahedron Letters*, 1401 (1980).
31. P. W. Rabideau, E. G. Burkholder and M. J. Yates, "The Metal-Ammonia Reduction of 1-Naphthoic Acid," *Synthetic Communications*, **10**, 627 (1980).
32. P. W. Rabideau, N. K. Peters and D. L. Huser, "Metal-Ammonia Reduction: The Effect of Methyl Substituents and a Question Concerning Protonation Sites in Dianions," *The Journal of Organic Chemistry*, **46**, 1593 (1981).
33. K. B. Lipkowitz, P. W. Rabideau, D. J. Raber, P. v. R. Schleyer, A. J. Kos and R. A. Kahn, "Structure and Conformation of 1,4-Dihydrobenzene, 1,4-Dihydro-naphthalene and 9,10-Dihydroanthracene. A Theoretical Study," *The Journal of Organic Chemistry*, **47**, 1002 (1982).
34. D. J. Raber, L. E. Hardee, P. W. Rabideau and K. B. Lipkowitz, "Structure and Conformation of Dihydroaromatic Compounds. 1-Alkyl-1,4-Dihydrobenzenes, 1-Alkyl-1,4-Dihydronaphthalenes and 9-Alkyl-9,10-Dihydroanthracenes," *Journal of the American Chemical Society*, **104**, 1843 (1982).

35. P. W. Rabideau, D. M. Wetzel and J. W. Paschal, "The Conformational Analysis of 1,4-Cyclohexadienes: The Effect of a Single Bulky Substitute," *The Journal of Organic Chemistry*, **47**, 3993 (1982).
36. P. W. Rabideau and D. L. Huser, "Protonation of Anion Intermediates in Metal-Ammonia Reduction: 1,2- vs. 1,4-Dihydroaromatic Products," *The Journal of Organic Chemistry*, **48**, 4266 (1983).
37. P. W. Rabideau, C. A. Husted and D. M. Young, "The Metal-Ammonia Reduction of 1-Acetylnaphthalene," *The Journal of Organic Chemistry*, **48**, 4149 (1983).
38. P. W. Rabideau, D. M. Wetzel, C. A. Husted and J. R. Lawrence, "The C-13 NMR Conformational Analysis of 9,10-Dihydroanthracene Monoanions," *Tetrahedron Letters*, **25**, 31 (1984).
39. P. W. Rabideau, D. M. Wetzel and D. M. Young, "The Metal-Ammonia Ring Reduction of Aromatic Carboxylic Esters," *The Journal of Organic Chemistry*, **49**, 1544 (1984).
40. P. W. Rabideau, K. B. Lipkowitz and R. B. Nachbar, Jr., "Structure and Conformation of Dihydro-aromatic Compounds III. Cis and Trans Disubstituted Dihydrobenzenes, Dihydronaphthalenes and Dihydroanthracenes," *Journal of the American Chemical Society*, **106**, 3119 (1984).
41. Z. Marcinow and P. W. Rabideau, "The Stereochemistry of Alkylation of 7-Alkyl-7,12-Dihydropleiadene Anions," *Tetrahedron Letters*, **25**, 5364 (1984).
42. P. W. Rabideau and Z. Marcinow, "The Dissolving Metal Reduction of Naphthalene Coal Models," *Fuel*, **64**, 872 (1985).
43. P. W. Rabideau and J. L. Mooney, "The Conformational Analysis of 1,4-Cyclohexadienes. A Shallow Boat Shaped 1,4-Dihydronaphthalene," *The Journal of Organic Chemistry*, **50**, 5737 (1985).
44. P. W. Rabideau, "A Convenient Synthesis of Dibenzobarrelene and Isomeric C₁₆H₁₂ Hydrocarbons," *Organic Preparations and Proceedings International*, **18**, 113 (1986).
45. J. L. Mooney, Z. Marcinow and P. W. Rabideau, "Deprotonation/Alkylation Reactions of Monoalkyl 9,10-Dihydroanthracenes and 7,12-Dihydropleiadenes. Stereochemical Outcome and Anion Models," *The Journal of Organic Chemistry*, **51**, 527 (1986).
46. P. W. Rabideau, C. A. Husted, L. M. Day, J. L. Mooney and D. M. Wetzel, "The Stereochemistry of Metal-Ammonia Ring Reduction of Aryl Carboxylates and Ketones and the NMR Conformational Analysis of the Dihydroaromatic Products," *The Journal of Organic Chemistry*, **51**, 1681 (1986).
47. P. W. Rabideau and Z. Marcinow, "The Conformational Analysis of 7,12-Dihydropleiadenes. Molecular Mechanics Calculations, Proton and Carbon-13 NMR," *The Journal of Organic Chemistry*, **51**, 2949 (1986).
48. P. W. Rabideau, A. J. Maxwell and A. Sygula, "The Nature of 9-R-9,10-Dihydro-anthracene Monoanions Formed by the Monoprotonation of Dianions or the Deprotonation of Neutrals," *The Journal of Organic Chemistry*, **51**, 3181 (1986).
49. P. W. Rabideau, J. L. Mooney and K. B. Lipkowitz, "The Conformational Analysis of 9,10-Dihydroanthracenes. Molecular Mechanics Calculations, Proton and Carbon-13 NMR," *Journal of the American Chemical Society*, **108**, 8130 (1986).

50. A. Sygula and P. W. Rabideau, "The Structure of 9-Substituted 9,10-Dihydro-anthracene Monoanions. A Semiempirical MO Study," *The Journal of Organic Chemistry*, **52**, 3521 (1987).
51. P. W. Rabideau and G. Karrick, "The Silicon Modified Metal-Ammonia Reduction of Aromatic Compounds," *Tetrahedron Letters*, 2481 (1987).
52. A. Sygula, K. Lipkowitz and P. W. Rabideau, "The Nature of Carbon-Lithium Bonding in Aromatic Dianions. An MNDO Study," *Journal of the American Chemical Society*, **109**, 6602 (1987).
53. A. Sygula, U. Edlund and P. W. Rabideau, "Structure of the Cyclononatetraenyl Anion and Some of its Benzannelated Derivatives. A Semiempirical MNDO and AM1 Study," *The Journal of Chemical Research*, 312 (1987).
54. P. W. Rabideau, J. L. Mooney, W. K. Smith, A. Sygula and J. W. Paschal, "The Dissolving Metal Reduction of Aceanthrylene: A Rigid, Boat-shaped 9,10-Dihydroanthracene," *The Journal of Organic Chemistry*, **53**, 589 (1988).
55. P. W. Rabideau, Z. Marcinow and A. Sygula, "The Metal-Ammonia Reduction of Triphenylene," *The Journal of Organic Chemistry*, **53**, 3603 (1988).
56. P. W. Rabideau and Z. Marcinow, "The Metal-Ammonia Reduction of alpha-Tetralone," *The Journal of Organic Chemistry*, **53**, 2117 (1988).
57. P. W. Rabideau and Z. Marcinow, "Silicon Modified Birch Reduction: Application to Phenanthrenes," *Tetrahedron Letters*, 3761 (1988).
58. P. W. Rabideau, "The Dissolving Metal Reduction of Polynuclear Aromatic Compounds in Liquid Ammonia," in *Chemistry of Polynuclear Aromatic Compounds*, L. B. Ebert, Ed., ACS Advances in Chemistry Series, 1988.
59. P.W. Rabideau, "The Metal-Ammonia Reduction of Aromatic Compounds," *Tetrahedron*, **45**, 1579 (1989); *Tetrahedron Report No. 249*.
60. *The Conformational Analysis of Cyclohexenes, Cyclohexadienes and Related Hydroaromatic Compounds*, P. W. Rabideau, Ed., *Methods in Stereochemical Analysis*, VCH Publishers, 1989.
61. P. W. Rabideau, "The Conformational Analysis of 1,4-Cyclohexadienes and Related Hydroaromatics," in *The Conformational Analysis of Cyclohexenes, Cyclohexadienes and Related Hydroaromatic Compounds*, P. W. Rabideau, Ed., VCH, 1989.
62. P. W. Rabideau and A. Sygula, "The Conformational Analysis of 1,3-Cyclo-hexadienes and Related Hydroaromatics," in *The Conformational Analysis of Cyclohexenes, Cyclohexadienes and Related Hydroaromatic Compounds*, P. W. Rabideau, Ed., VCH, 1989.
63. P. W. Rabideau and U. Govindarajan, "Concerning the Detailed Pathway of Xylyl Rotation in 9-(2,6-Xylyl)-9,10-Dihydroanthracenes," *The Journal of Organic Chemistry*, **54**, 988 (1989).
64. Z. Marcinow, C. E. Hull, P. W. Rabideau, "Competition Between Birch Reduction and Bond Cleavage in 1,2-Bis(4-methyl-1-naphthyl)ethane," *The Journal of Organic Chemistry*, **54**, 3602 (1989).
65. P. W. Rabideau, W. K. Smith and B. D. Ray, "The Unusual Behavior of Isopropyl Substituents in 9,10-Dihydroanthracenes. An NMR and Molecular Mechanics Study," *Magnetic Resonance in Chemistry*, **27**, 191 (1989).
66. P. W. Rabideau and Z. Marcinow, "Silicon Modified Metal-Ammonia Reduction and Reductive Alkylation," *Tetrahedron*, **45**, 5441 (1989).

67. Z. Marcinow and P. W. Rabideau, "The Metal-Ammonia Reduction of Mono- and Dinaphthylbenzenes," *The Journal of Organic Chemistry*, **55**, 3812 (1990).
68. W. K. Smith, J. N. Hardin and P. W. Rabideau, "The Silicon Modified Metal-Ammonia Reduction of Fluorene," *The Journal of Organic Chemistry*, **55**, 5301, (1990).
69. B. Wind, A. Sygula, U. Govinarajan, U. Edlund, I. Sethson, and P. W. Rabideau, "The Structure of 7,12-Dilithio-7,12-Dihydropleiadene: An Investigation by C-13 NMR Spectroscopy and MNDO Calculations," *The Journal of Organic Chemistry*, **56**, 618, (1991).
70. A. Sygula and P. W. Rabideau, "The Structure of Dilithiobenzenide: An ab Initio Study," *Journal of the American Chemical Society*, **113**, 7797 (1991).
71. P. W. Rabideau, R. K. Dhar, D. K. Clawson and Z. Zhan, "Silicon Mediated Alkylations in the 9,10-Dihydroanthracene System: a Convenient Synthesis of 9,9-Dialkyl-9,10-Dihydroanthracenes," *Tetrahedron Letters*, 3969, (1991).
72. P. W. Rabideau, B. K. Wind and A. Sygula, "The Effect of Phenyl Substitution on the Structure of Benzylic Anions," *Tetrahedron Letters*, 5659, (1991).
73. P. W. Rabideau and Z. Marcinow, "The Birch Reduction," in *Organic Reactions*, Volume 42, pp. 1-334; L. A. Paquette, Editor-in-Chief, John Wiley & Sons, New York, 1992.
74. I. Sethson, D. Johnels, T. Lejon, U. Edlund, B. Wind, A. Sygula and P. W. Rabideau, "The Existence of Carbanion Triplet Structures as Evidenced by NMR Spectroscopy and MNDO/AM1 Calculations," *Journal of the American Chemical Society*, **114**, 953 (1992).
75. A. Sygula and P. W. Rabideau, "An Ab Initio Study of the Structure of Monomeric, Unsolvated Benzylolithium. Is Covalency of the Carbon-Lithium Bond Important?" *Journal of the American Chemical Society*, **114**, 821 (1992).
76. P. W. Rabideau, R. K. Dhar and F. R. Fronczek, "The Geometry of the 1,4-Dihydronaphthalene Ring," *Journal of the Chemical Society, Chemical Communications*, 79 (1992).
77. A. Sygula and P. W. Rabideau, "Pathways for Ring Inversion in 9,10-Dihydro-anthracene, 9,10-Dihydrophenanthrene and 7,12-Dihydropleiadene. A Combined Molecular Orbital and Molecular Mechanics Study," *The Journal of Computational Chemistry*, **13**, 633 (1992).
78. R. K. Dahr, D. K. Clawson, F. R. Fronczek and P. W. Rabideau, "A Convenient Synthesis of 9,9-Dialkyl-9,10-Dihydroanthracenes and 10,10-Dialkylanthrones: Silicon Mediated Regioselective Dialkylation of 9,10-Dihydroanthracene," *The Journal of Organic Chemistry*, **57**, 2917 (1992).
79. A. Sygula, R. Sygula, F. R. Fronczek and P. W. Rabideau, "Crystal and Molecular Structure of 10-Substituted-9-Anthracenones. Substituent Size as the Controlling Factor for the Nonplanarity of the Central Ring," *The Journal of Organic Chemistry*, **57**, 3286 (1992).
80. A. Sygula and P. W. Rabideau, "An Ab Initio Study of the Structures and the Inversion Barriers in 1,3-Cyclohexadiene, 1,2-Dihydronaphthalene and 9,10-Dihydrophenanthrene," *J. of Molecular Structure, THEOCHEM*, **262**, 117 (1992).
81. R. K. Dhar, A. Sygula, F. R. Fronczek and P. W. Rabideau, "An Investigation of Substituent Effects on the Conformation of 9,10-Dihydroanthracenes by Molecular Mechanics Calculations and X-ray Structure Analysis," *Tetrahedron*, **48**, 9417 (1992).
82. A. Houssein, A. Sygula, P. W. Rabideau, "Locking" the Bowl-Shaped Geometry of Corannulene: Cyclopentacorannulene," *Journal of the American Chemical Society*, **115**, 3010 (1993).
83. P. W. Rabideau, Z. Marcinow, R. Sygula and A. Sygula, "Concerning the Structure of the Corannulene Tetraanion," *Tetrahedron Letters*, **34**, 6351 (1993).

84. P. W. Rabideau, A. Sygula, R. K. Dahr and F. R. Fronczek, "The Preferred U-Conformation of *m*-Quinquephenyl. An X-Ray Crystal Structure Determination and Molecular Mechanics Study," *Journal of the Chemical Society, Chemical Communications*, 1795 (1993).
85. A. Sygula and P. W. Rabideau, "Bowl-to-Bowl Inversion in Polynuclear Aromatic Hydrocarbons with Curved Surfaces: An Ab Initio Study," *Journal of the Chemical Society, Chemical Communications*, 1497 (1994).
86. A. Avalon, A. Sygula, P. C. Cheng, M. Rabinovitz, P. W. Rabideau and L. T. Scott, "Stable High-Order Molecular Sandwiches: Hydrocarbon Polyanion Pairs with Multiple Lithium Ions Inside and Out," *Science* **265**, 1065 (1994).
87. A. H. Abdourazak, Z. Marcinow, H. E. Folsom, R. Sygula, A. Sygula and P. W. Rabideau, "1,2,5,6-Tetraketopyracene: Synthesis, and Structure by Ab Initio Calculation and X-Ray Analysis," *Tetrahedron Letters*, **35**, 3857 (1994).
88. P. W. Rabideau, A. H. Abdourazak, H. E. Folsom, Z. Marcinow, A. Sygula and R. Sygula, "Buckybowls: Synthesis and Ab Initio Calculated Structure of the First Semibuckminsterfullerene," *Journal of the American Chemical Society*, **116**, 7891 (1994).
89. A. Sygula and P. W. Rabideau, "Convex vs. Concave π -Facial Binding of Metal Cations to a Semibuckminsterfullerene: An Ab Initio Study," *Journal of the Chemical Society, Chemical Communications*, 2271 (1994).
90. A. Sygula, H. E. Folsom, R. Sygula, A. H. Abdourazak, Z. Marcinow, F. R. Fronczek and P. W. Rabideau, "The First Example of Bowl Stacking in Convex Hydrocarbons: Crystal and Molecular Structure of Cyclopentacorannulene," *Journal of the Chemical Society, Chemical Communications*, 2571 (1994).
91. P. W. Rabideau, A. H. Abdourazak, Z. Marcinow, A. Sygula and R. Sygula, "Buckybowls 2: Towards the Total Organic Synthesis of Buckminsterfullerene (C₆₀): Benz[5,6]-*as*-indaceno[3,2,1,8,7-*mno*qr]indeno[4,3,2,1-*cdef*]chrysene," *Journal of the American Chemical Society*, **117**, 6410 (1995).
92. A. Sygula and P. W. Rabideau, "Structure and Inversion Barriers of Corannulene and its Dianion and Tetraanion. An ab initio Study," *Journal of Molecular Structure (Theochem)*, **333**, 215 (1995).
93. P. W. Rabideau, "Sodium-Ammonia Reagent," in *Encyclopedia of Reagents for Organic Synthesis*, 7, 4504; L. A. Paquette, Editor-in-Chief, John Wiley & Sons, New York, 1995.
94. P. W. Rabideau and A. Sygula, "Polynuclear Aromatic Hydrocarbons with Curved Surfaces," in *Advances in Theoretically Interesting Molecules*, Vol. 3, R. P. Thummel, Ed., JAI Press, 1995.
95. Z. Marcinow, F. R. Fronczek, Y.-H. Liu and P. W. Rabideau, "Hydrocarbons with Carbon Frameworks Represented on the Buckminsterfullerene Surface: Indeno[7,7a,1,2,3-*lmno*]-1,12-ethenochrysene," *The Journal of Organic Chemistry*, **60**, 7015 (1995).
96. A. Sygula, A. H. Abdourazak, P. W. Rabideau, " π -Facial Stereoselective Deuteration of Cyclopentacorannulene and Determination of the Bowl-to-Bowl Inversion Barrier for a Constrained Buckybowl," *Journal of the American Chemical Society*, **118**, 339 (1996).
97. P. W. Rabideau and A. Sygula, "Buckybowls: Polynuclear Aromatic Hydrocarbons Related to the Buckminsterfullerene Surface," *Accounts of Chemical Research*, **29**, 235 (1996).
98. P. W. Rabideau, "Buckybowls: The Synthesis and Structure of Polynuclear Aromatic Hydrocarbons with Carbon Frameworks Identified on the Buckminsterfullerene Surface," in

Science & Technology of Atomically Engineered Materials, P. Jena, S. N. Khanna, B. K. Rao, Ed., World Scientific Publishing Co., p. 475-481 (1996).

99. A. Sygula, F. R. Fronczek, P. W. Rabideau, "The First Example of η^8 Coordination of Lithium Cations with a Cyclooctatetraene Dianion: Crystal Structure of $\text{Li}_2(\text{Dibenzo}[\text{a,e}]\text{cyclooctatetraene}) (\text{TMEDA})_2$," *Journal of Organometallic Chemistry*, 526, 389 (1996).
100. M. D. Clayton, Z. Marcinow, and P. W. Rabideau, "Improved Synthesis of a $\text{C}_{30}\text{H}_{12}$ Buckybowl via Benzylic Oxidation with Benzeneseleninic Anhydride," *The Journal of Organic Chemistry*, 61, 6052 (1996).
101. C. Z. Liu and P. W. Rabideau, "Corannulene Synthesis via the Pyrolysis of Silyl Vinyl Ethers," *Tetrahedron Letters*, 37, 3437 (1996).
102. J. Dey, A. Yvette Will, R. A. Agbaria, P. W. Rabideau, A. H. Abdourazak, R. Sygula and I. M. Warner, "Spectroscopy Study of a Representative Polar Cap of Buckminsterfullerene: Cyclopentacorannulene," *The Journal of Fluorescence*, 7(3), 231-6 (1997).
103. M. D. Clayton and P. W. Rabideau, "Synthesis of a New $\text{C}_{32}\text{H}_{12}$ Bowl-Shaped Aromatic Hydrocarbon," *Tetrahedron Letters*, 38, 741 (1997).
104. A. Sygula, F. R. Fronczek and P. W. Rabideau, "Fullerene Fragments: Synthesis and Crystal Structure of 1,4,5,6,7,10,11,12-Octamethylendo[1,2,3-*cd*]-fluoranthene," *Tetrahedron Letters*, 5095, (1997).
105. R. M. Shaltout, R. Sygula, A. Sygula, F. R. Fronczek, G. G. Stanley and P. W. Rabideau, "The First Crystallographically Characterized Transition Metal Buckybowl Compound: $\text{C}_{30}\text{H}_{12}$ Carbon-Carbon Bond Activation by $\text{Pt}(\text{PPh}_3)_2$," *Journal of the American Chemical Society*, 120, 835, (1998).
106. M. D. Clayton, Z. Marcinow, P. W. Rabideau, "Benzeneseleninic Anhydride Oxidation of 1,2-Diarylethanes and 1,2-Diarylethylenes to 1,2-Diarylketones," *Tetrahedron Letters*, 9127 (1998).
107. A. Sygula, P. W. Rabideau, "The First Non-Pyrolytic Synthesis of a Semibuckminsterfullerene," *Journal of the American Chemical Society*, 120, 12666 (1998).
108. A. Sygula, P. W. Rabideau, "Non-Pyrolytic Syntheses of Buckybowls: Corannulene and Cyclopentacorannulene," *Journal of the American Chemical Society*, 121, 7800 (1999).
109. Z. Marcinow and P. W. Rabideau, "Synthesis of 7,10-Bis(2-halophenyl)tribenzo[b,e,k]-fluoranthene as a Potential Buckybowl Precursor," *The Journal of Organic Chemistry*, 65, 5063 (2000).
110. A. Sygula, P. W. Rabideau, "A Practical, Large Scale Synthesis of the Corannulene System," *Journal of the American Chemical Society*, 122, 6323 (2000).
111. A. Sygula, Z. Marcinow, F. R. Fronczek, I. Guzei, P. W. Rabideau, "The First Crystal Structure Characterization of a Semibuckminsterfullerene and a Novel Synthetic Route," *Journal of the Chemical Society, Chemical Communications*, 2439, (2000).
112. A. Sygula, G. Xu, Z. Marcinow and P. W. Rabideau, "Chemistry on the Rim of Buckybowls: Derivatization of 1,2,5,6-Tetrabromocorannulene," *Tetrahedron Letters*, 9931, (2000).
113. A. Sygula, G. Xu, Z. Marcinow, and P. W. Rabideau, "Buckybowls: Introducing Curvature by Solution Phase Synthesis," *Tetrahedron Symposium in Print, Novel Aromatic Compounds*, 57, 3637, (2001).

114. Z. Marcinow, A. Sygula, A. Ellern and P. W. Rabideau, "Lowering Inversion Barriers of Buckybowls by Benzannulation of the Rim: Synthesis and Crystal and Molecular Structure of Dihydrocyclopentadibenzocorannulene," *Organic Letters*, **3**, 3527 (2001).
115. Z. Marcinow, D. Groves, and P. W. Rabideau, "A New C₃₂H₁₂ Buckybowl," *The Journal of Organic Chemistry*, **67**, 3537 (2002).
116. Z. Marcinow, A. Sygula, P. W. Rabideau, "Improved Synthesis of Benz[a]acephenanthrene," *Synlett*, 1839 (2002).
117. A. Sygula, R. Sygula, F. R. Fronczek and P. W. Rabideau, "The Addition of Organolithium Reagents to Corannulene and Conformational Preferences in 1-Alkyl-1,2-Dihydro-corannulenes," *The Journal of Organic Chemistry*, **67**, 6487 (2002).
118. A. Sygula, S. Karlen, R. Sygula, and P. W. Rabideau, "Formation of the Corannulene Core by Nickel-Mediated Intramolecular Coupling of Benzyl and Benzylidene Bromides: A Versatile Synthesis of Dimethyl 1,2-Corannulene Dicarboxylate," *Organic Letters*, **4**, 3135 (2002).
119. C. M. Alvarez, R. J. Angelici, A. Sygula, R. Sygula, P. W. Rabideau, "Hexahapto Corannulene Buckybowl Complexes of Iridium, Including Ring-to-Ring Migration," *Organometallics*, **22**, 624 (2003).
120. A. Sygula, R. Sygula, A. Ellern and P. W. Rabideau, "A Novel Twin Corannulene: Synthesis and Crystal Structure Determination of a Dikorannulenobarrelene dicarboxylate," *Organic Letters*, **2003**, **5**, 2595.
121. P. A. Vecchi, C. M. Alvarez, A. Ellern, R. J. Angelici, A. Sygula, R. Sygula, P. W. Rabideau, "Synthesis and Structure of a Dimetallated Buckybowl: Coordination of One {Cp*Ru}⁺ Unit to Each Side of Corannulene," *Angewandte Chemie, International Edition*, **43**, 4497, (2004).

NEWS RELEASES AND NOTES

A number of news articles and notes have appeared featuring some of the above publications (see appended materials).

Publication No. 82

- "Researchers 'Lock' Bowl-Shaped Geometry of Corannulene," *Chemical and Engineering News*, April 19, 1993.

Publication No. 86

- "Corannulene Anions, Lithium Cations Form Molecular Sandwiches," *Chemical and Engineering News*, August 22, 1994, p. 32.

Publication No. 88

- "Buckybowl – Half of a C₆₀ Molecule – Synthesized," *Chemical and Engineering News*, August 29, 1994, p. 7-8.
- "LSU Scientists Form First Buckybowls," *ER News*, Office of Energy Research, v. 4, No. 4, August 1994, p. 1.
- "Life Is Just a Buckybowl of Cherries," *New Scientist* (United Kingdom), January 7, 1995, p. 14-15.

Publication No. 91

- “Buckybowl Representing Half of a C₆₀ Molecule Is Synthesized” *Chemical and Engineering News*, June 19, 1995, p. 22.
- “Fullerenes on the Half Shell,” *SCIENCE*, July 21, 1995, p. 305.
- *INSIDE R&D*, August 9, 1995, p. 7.
- This publication was also the subject of a telephone radio interview with Roland Pease of the British Broadcasting Company.

Publication No. 105

- “Metal-Buckybowl Structure Dishes Out a Surprise,” *Chemical and Engineering News*, February 2, 1998, p. 25.

Publication No. 107

- “Solution-Phase Route to Half of a Buckyball,” *Chemical and Engineering News*, December 14, 1998.

Publications No. 111 and 112

- “From Buckyballs to Buckybowls,” *MICROELECTRONICS TECHNOLOGY ALERT*, April 13, 2001, electronic publication, Frost & Sullivan, Inc.
- “Buckybowls by the Bucketful,” Office of Science Home Page, U.S. Department of Energy, April 28, 2001.
- “BUCKYBOWLS by the Bucketful,” *USA Today*, June 1, 2001, p. 12.

CURRENT RESEARCH SUPPORT

“Polynuclear Aromatic Hydrocarbons with Curved Surfaces: Buckybowls,” the Department of Energy, (to Mississippi State) \$300,000; 2/1/04 to 1/31/2007.

PREVIOUS RESEARCH SUPPORT

Approximately \$3-million in various awards from the Department of Energy, the National Science Foundation, and the Petroleum Research Fund.