Curriculum Vitae

NAME: Richard D. Adams

ADDRESS: Department of Chemistry and Biochemistry
University of South Carolina
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Columbia, SC 29208 USA

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HOME ADDRESS: 3533 Northshore Road
Columbia, SC 29206

EDUCATION:

Pennsylvania State University, State College, PA, B.S., 1969
Massachusetts Institute of Technology, Cambridge, MA. Ph.D., 1973, Inorganic Chemistry, Thesis Title: Studies of Bridge-Terminal Coordination Rearrangements in Organometallic Compounds. Supervisor: F. A. Cotton

EXPERIENCE:

Carolina Distinguished Professor Emeritus, University of South Carolina, 2017 - present
Carolina Distinguished Professor, University of South Carolina, 2006 – 2017
Founding Director, USC NanoCenter, 2001 – 2005
(Responsible for devising, organizing and implementing the scientific thrusts, spacial, and financial structures of the USC NanoCenter.
Arthur S. Williams Professor of Chemistry, University of South Carolina, 1995 – 2006
Professor - University of South Carolina, 1984-1995
Associate Professor - Yale University, 1980-1984
Assistant Professor - Yale University, 1975-1980
Assistant Professor - SUNY Buffalo, 1973-1975

PROFESSIONAL ORGANIZATIONS:

American Chemical Society; European Academy of Sciences and Arts - Member of Natural Sciences Section; Fellow American Association for the Advancement of Science; Materials Research Society; Alexander von Humboldt Society

SUMMARY OF EXTRAMURAL RESEARCH SUPPORT:

(Cumulative Amounts for Single Investigator Awards)

Petroleum Research Fund	-	$9,000	1974-1977
Research Corporation	-	$8,959	1976-1977
Petroleum Research Fund	-	$30,000	1979-1982

Alfred P. Sloan Foundation - $20,000 1979-1983
Petroleum Research Fund - $35,000 1985-1988
Petroleum Research Fund - $80,000 1990-1994
Mallinckrodt Medical Inc. - $120,000 1990-1992
NATO Travel Award - $10,030 1992-1998
Department of Defense (ONR)* - $330,000 1997-2001
joint with C.J.Murphy
Binational Science Foundation (US/Israel)
(with Uri Zoller, Haifa University) $50,000 2000-2003
NSF Epscor Collaborative Research (with Frank Switzer
and Godfrey Mbah) $74,567 2003-2004
Department of Energy - $2,993,000 1978-2008
Department of Energy - $ 810,000 2008-2011
National Science Foundation - $3,764,869 1981-2022
NSF – USC CeRCaS, R. D. Adams (USC), C. Williams (USC), S. Khanna (VCU) - "Catalytic Upgrading of Hydrocarbons by Selective Oxidation using CuFe and CuRu Bimetallic Catalysts, $60,000, Period: 7/1/2017 – 6/30/2018

Highlights of Adams Recent Research:

[1] "**Heavy-Metal Ring Bags a Metal Atom**" *Chemical & Engineering News* August 8, **2011**, p. 13.
[2] "**STM Reveals Bimetallic Nanoclusters**" *Chemical & Engineering News* September 15, **2008**, p. 34.
[3] "**Two Metals are Better than One**" *Chemical & Engineering News* October 12, **2006**, p. 39.
[4] "**Platinum-rhenium complex adds lots of hydrogen.**" *Chemical & Engineering News* May 2, **2005**, p. 31.
[5] ***Dyson, P. J.; McIndoe, J. S.*** "Hydrogen sponge? A heteronuclear cluster that absorbs large quantities of hydrogen." *Angew. Chem. Int. Ed.* **2005**, *44*, 5772.

Research Interests:

1. Energy Conversion and the Chemistry and Catalytic Properties of Metal Cluster Compounds Containing Platinum.

   a) Studies of the Synthesis, Structures, Reactivity and Catalytic Activity of Heteronuclear Transition Metal Carbonyl Cluster Complexes Containing Platinum.

   b) Mechanisms of the Catalytic Hydrogenation of Small

Unsaturated Molecules by Transition Metal Cluster Complexes and Aspects of the Structure and Bonding of Partially Hydrogenated Intermediates Coordinated to Metal Clusters.

c) Stuides of the Synthesis and Reactivity of Ammonioethenyl and Phosphioethenyl Ligands in Metal Carbonyl Complexes.

Awards and Honoraria:

1. Fellow of Alfred P. Sloan Foundation, 1979-81

2. Recipient of Russell Award for Research in Science and Engineering from the University of South Carolina, 1989.

3. Chairman, Gordon Conference on Inorganic Chemistry, 1991.

4. Visiting Professor - Institut le Bel, Université Louis Pasteur, FRANCE, 1993

5. Visiting Professor - National Science Council of Taiwan, TAIWAN, 1994

6. Visiting Professor Ecole National Superieur de Chimie de Paris, FRANCE, 1999

7. ACS National Award in Inorganic Chemistry, 1999.

8. Charles H. Herty Medal of the Georgia Section of the American Chemical Society, 1999.

9. Charles H. Stone Award of the Carolina-Piedmont Section of the American Chemical Society, 1999.

10. Visiting Professor of the Institut Universitaire de France, 2000.

11. U. S. Senior Scientist Award of the Alexander von Humboldt Foundation, Germany, 2000.

12. Pioneer Award from the American Institute of Chemists, 2000.

13. Outstanding Academic Chemist Award, South Carolina Section of the American Chemical Society, 2001.

14. Southern Chemist Award of American Chemical Society, Memphis Section of the American Chemical Society, 2001.

15. South Carolina Governor's Award for Excellence in Science, 2003.

16. Fellow of the American Association for the Advancement of Science – 2003

17. Henry J. Albert Award, International Precious Metals Institute, 2005.

18. Carolina Trustee Professor, University of South Carolina, 2005.

19. Chini Memorial Award Lectureship of the Italian Chemical Society, 2007.

20. 2010 National Award of the ACS for Distinguished Service in the Advancement of Inorganic Chemistry.

21. Distinguished Scientist Award of the Southeastern Universities Research Association (SURA), 2011.

22. Elected to the European Academy of Sciences and Arts - Member of Natural Sciences Section, 2011.

23. Florida Award of the American Chemical Society, 2016.

24. Michael J. Mungo Graduate Teaching Award, University of South Carolina, 2018.

Editorial Appointments:

1. Member of the Editorial Advisory board of the journal *Organometallics*, 1988-1990

2. Member of the Editorial Advisory Board of the journal *Polyhedron*, 1988-2000

3. Coeditor Editor of the Journal of Cluster Science, 1992 - 2021.

4. Editor-in-Chief of the Journal of Organometallic Chemistry, 1998 - present.

5. Member of the Editorial Board of Inorganic Syntheses, 2000 – present

Texts:

1. **Editor, "50th Anniversary of the Discovery of Ferrocene", Volumes 637-639 of the Journal of Organometallic Chemistry, Elsevier, Amsterdam, 2001.**

2. **Coeditor and coauthor of the text "Catalysis by Di- and Polynuclear Metal Cluster Complexes" with F. A. Cotton, Wiley, 1998.**

3. **Coeditor and coauthor of the text "The Chemistry of Metal Cluster Complexes" with H. D. Kaesz and D. F. Shriver, VCH Publishers, 1990.**

4. **Editor, Volume 10, Comprehensive Organometallic Chemistry II, 1982 - 1994, Abel, E., Stone, F. G. A, and Wilkinson, G. Exec. Ed., Elsevier, Oxford, 1995.**

Total of Research Publications:

Author and Coauthor of over 590 Scientific Research Publications – h-Index = 50

Invited Lectures and Honoraria

1) **Invited Speaker - Gordon Research Conference on Inorganic Chemistry, 1973**

2) **Chairman, General Papers Session, 173rd National Meeting, American Chemical Society, New Orleans, 1977**

3) **Invited Speaker, 2nd Annual NSF Workshop on Organometallic Chemistry, Colorado State University, June 1978**

4) **Invited Speaker, Gordon Research Conference on Inorganic Chemistry, August 1978**

5) **Invited Speaker and Member of Steering Committee, 3rd Annual NSF Workshop on Organometallic Chemistry, Colorado State University, July 1979**

6) **Invited Speaker, U.S.-Italy Conference on The Chemistry of Metal Cluster Complexes and Its Relationship to Homogeneous Catalysis, Gargnano, Italy, August 1979**

7) **Invited Speaker, U.S.-France, Seminar on the Relationship Between Cluster Compounds, Metal Surfaces and Catalysis, Pacific Grove, California, November 18-21, 1979**

8) **Invited Speaker - Symposium on Molecular Processes at Solid Surfaces: Chemistry of Metal Clusters, 179th National Meeting, American Chemical Society, Houston, Texas, March 1980**

9) **Member of Steering Committee, 4th Annual, NSF Workshop on Organometallic Chemistry, Northwestern University, July, 1980**

10) **Invited Speaker, Symposium on Metal Cluster Compounds in Catalysis, 2nd Chemical Congress of North American Continent, Las Vegas, Nevada, August 1980**

11) **Invited Speaker, Symposium on Metal Clusters, Summer Meeting of American Crystallographic Assn.; Calgary, Alberta, August 1980**

12) **Chairman, Symposium on Organic Transformations at Polynuclear Metal Centers, Fall National Meeting of the American Chemical Society, New York, NY, August 1981**

13) **Co-Chairman, U.S.-France, Seminar on the Activation of CO_2 and Related Heteroallenes on Metal Centers, University of Rennes, Rennes, France, May 20-22, 1981**

14) **Invited Speaker, Seminar Series "Metal Clusters in Catalysis", New York Academy of Sciences, May 14, 1981**

15) **Speaker, New England Workshop on Organometallic Chemistry, Seven Springs Center, Mt. Kisco, NY, 1976, 1977, 1978, 1979, 1980, 1982, 1983**

16) **Speaker, 10th International Conference on Organometallic Chemistry, Toronto, Canada, August 1981**

17) **Invited Speaker, Symposium on the Application of Coordination Chemistry Concepts to Surface Chemistry, Fall National Meeting of the American Chemical Society, Kansas City, MO, 1982**

18) **Invited Speaker, Gordon Research Conference on**

Organometallic Chemistry, August 1982

19) Invited Speaker, Second Homogeneous Catalysis Research Conference, Department of Energy, University of Wisconsin, June, 1982

20) Invited Speaker, Conference on Catalytic Transition Metal Hydrides, New York Academy of Science, NY, November 1982

21) Invited Speaker, Gordon Research Conference on Inorganic Chemistry, August 1983

22) Invited Speaker, Symposium on Metal-Metal Bonds: Synthesis, Structure and Reactivity, Washington University, St. Louis, MO, April 8, 1983

23) Speaker, Symposium on Catalytic Chemistry of Transition Metal Sulfide Systems, Fall National Meeting of the American Chemical Society, Washington, DC, August 1983

24) Invited Speaker, Symposium on Mixed Metal Cluster Compounds, l9th Western Regional Meeting of the American Chemical Society, Pasadena, CA, October 26-28, 1983

25) Speaker, 187th National Meeting of the American Chemical Society, St. Louis, MO, April 1984

26) Invited Speaker, Symposium on Sulfided Clusters: Synthesis, Bonding and Reactivity, Joint Great Lakes and Central Regional Meeting of the ACS, May 23-25, 1984

27) Invited Speaker, Symposium on Structures, Bonding and Reactivity of Metal Clusters, 188th National Meeting of the ACS, Philadelphia, PA, August 1984

28) Inivted Speaker, U.S.-Germany Workshop on Reactivity at Di- and Polynuclear Metal Sites, Konigstein, West Germany, September 2-6, 1985

29) Speaker, General Papers Section, 189th National Meeting of the American Chemical Society, Miami Beach, FL, April 1985

30) **Poster Presentation, XIIth International Conference on Organometallic Chemistry, Vienna, Austria, September 1985**

31) **Speaker, General Papers Section, 191st National Meeting of the American Chemical Society, New York City, April 1986**

32) **Invited Speaker, Gordon Research Conference on Inorganic Chemistry, August 1987**

33) **Invited Speaker, U.S.-Germany Seminar on "The Chemistry of Heteronuclear Clusters and Multimetallic Catalysts", Konigstein, West Germany, September 7-11, 1987**

34) **Invited Speaker, Symposium on Organometallic Clusters, 3rd Chemical Congress of North America, Toronto, Canada, June 5-10, 1988**

35) **Invited Speaker, Symposium on Structural Aspects of Transition Metal Clusters, Argonne National Laboratory, Argonne, IL, June 12-14, 1988**

36) **Invited Speaker, Seventh Industrial University Cooperative Chemistry Program, Texas A & M University, College Station, TX, March 20-23, 1989**

37) **Invited Speaker, Marks Symposium for ACS Award in Organometallic Chemistry, 197th National Meeting of the American Chemical Society, Dallas, TX, April 10-14, 1989**

38) **Invited Speaker, 35th Okazaki Conference on Rational Synthesis of Metal Cluster Compounds and Cooperative Phenomena of Multinuclear Frameworks, Okazaki, Japan, May 23-25, 1989.**

39) **Invited Speaker, Symposium on Reactivity and Structure of Small Metal Clusters, 21st Central Regional Meeting of the ACS, Cleveland, Ohio, May 31-June 2, 1989.**

40) **Member of International Advisory Board for the XIVth International Conference on Organometallic Chemistry, Detroit, MI, August 19 - 24, 1990.**

41) Invited Speaker, Symposium on Southeastern Organometallic Chemistry, 41st Southeast Regional Meeting of the ACS, Oct. 9-11, 1989, Winston-Salem, NC.

42) Invited Speaker, Symposium on Reactivity of Dinuclear and Polynuclear Compounds, PACIFICHEM meeting, Honolulu, HA, Dec. 17-21, 1989.

43) Invited Speaker, Symposium on Hydrodesulfurization and Hydrodenitrification, 199th National Meeting of the American Chemical Society, April 23-27, 1990, Boston, MA.

44) Invited Speaker, Fourth International Conference on the Chemistry of the Platinum Group Metals, July 9-13, 1990, Cambridge, U.K.

45) Invited Speaker, Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 30 - August 3, 1990.

46) Poster Presentation, R. D. Adams and M. P. Pompeo, Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 30 - Aug. 3, 1990.

47) Speaker, 14th International Conference on Organometallic Chemistry, August 20 -24, 1990, Detroit, MI

48) Invited Speaker, Symposium on Soluble Metal Chalcogenides, 200th National meeting of the American Chemical Society, August 27 - 31, 1990, Washington, D. C.

49) Invited Speaker, Symposium on Transformations at Multicenter Metal Sites, Southeast/Southwest Regional Meeting of the ACS, Dec. 4-7, 1990.

50) Invited Speaker, Symposium on Characterizing the Structure of Large Molecules, 201st National meeting of the American Chemical Society, Atlanta, GA, April 14 - 19, 1991.

51) Poster Presentation, R. D. Adams and G. Chen, "Activation and Hydrogenation of Ynamines by Dirhenium Carbonyl Clusters", 201st National meeting of the American Chemical Society, Atlanta, GA, April 14 - 19,

1991.

52) Poster Presentation, R. D. Adams and G. Chen, "Activation and Derivatization of an N-methyl Group on an Aminocarbene Ligand in an Osmium Cluster", 201st National Meeting of the American Chemical Society, Atlanta, GA, April 14 - 19, 1991.

53) Lecture, C. M. King, R. B. King, A. R. Garber, R. D. Adams and G. Chen, Oxygen-17 NMR Study of Uranyl Hydrolysis and Gelation, 201st National Meeting of the American Chemical Society, Atlanta, GA, April 14 - 19, 1991.

54) Lecture, M. P. Pompeo, R. D. Adams, J. Belinski, "Reactions of Metal Carbonyl Cluster Complexes with Strained Ring Thioethers, 201st National Meeting of the American Chemical Society, Atlanta, GA, April 14 - 19, 1991.

55) Speaker, 15th NSF Workshop on Organometallic Chemistry, Exxon Corporate Research Center, May 17-20, 1991.

56) Speaker, 3rd DOE/BES Conference on Organometallic Chemistry and Homogeneous Catalysis, Madison, WI, "The Chemistry of Ynamines in Metal Carbonyl Cluster Complexes", June 1991.

57) Poster Presentation, R. D. Adams and G. Chen, "Transformations of Aminocarbenes in Osmium Cluster Complexes", Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 29 - Aug. 2, 1991.

58) Poster Presentation, R. D. Adams and M. P. Pompeo, "Ring Opening of Thietanes by Osmium Cluster Complexes", Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 29 - Aug. 2, 1991.

59) Invited Speaker, Symposium on Heteronuclear Metal Cluster Complexes, Central Regional Meeting of the ACS, "New High Nuclearity Metal Carbonyl Cluster Complexes Containing Platinum and Ruthenium or Osmium", Cincinnati, OH, May 27-29, 1992.

60) Speaker, 29th International Conference on Coordination Chemistry, "New High Nuclearity Metal Carbonyl Cluster Complexes Containing Platinum and Ruthenium or Osmium", Lausanne, Switzerland, July 19-24, 1992.

61) Invited Speaker, Symposium on the Organic Chemistry of Clusters and Surfaces, "Ring Opening of Thietane Ligands in Metal Cluster Complexes", S. Vittoria d'Alba, Italy, July 27-31, 1992.

62) Invited Speaker, Symposium on the Chemistry of Clusters and Surfaces, "Ring Opening of Thietane Ligands in Metal Cluster Complexes", 201st National Meeting of the ACS, August 24-28, 1992.

63) Invited Speaker, Symposium on Polynuclear Metal Complexes, 76th National Conference of the Canadian Chemical Society, Sherbrooke, Quebec, May 31 - June 4, 1993.

64) Invited Speaker, Gordon Research Conference on Organometallic Chemistry, Newport, RI, July 12 - 16, 1993.

65) Invited Speaker, Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, August 1 - 5, 1994.

66) Poster Presentation, R. D. Adams and L. Chen "Insertion of Alkynes into Metal-Metal Bonds", Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 26 - July 31, 1994.

67) Invited Speaker, Symposium on Contemporary Inorganic Chemistry, College Station, TX, March 12 - 15 , 1995.

68) Invited Speaker, Symposium on "Recent Advances in the Chemistry of Polynuclear Metal Complexes of Thiolate and Thioether Ligands, 47th Southeast/51st Southwest Joint Regional Meeting of the American Chemical Society, November 29 - December 1, 1995, Memphis TN.

69) Invited Speaker, "Symposium of Supramolecular Systems", 212th National Meeting of the American Chemical Society, Orlando, FL, Aug. 25-29, 1996.

70) Invited Speaker, "New Polythioether Macrocycles from the Catalytic Macrocyclization of Thietanes and Thiiranes by Dirhenium and Tungsten Carbonyl Complexes", Symposium on Southeastern Organometallic Chemistry, 48th Southeast Regional meeting of the American Chemical Society in Greenville, SC, Nov. 11-13, 1996.

71) Invited Speaker, "Symposium on Organometallics in Catalysis" 5th Conference of the North American Continent, Cancun, Mexico, Nov. 12-15, 1997.

72) Invited Speaker, "Priestly Medal Symposium" 215th National Meeting of the American Chemical Society, Dallas, TX, March 30 - April 2, 1997.

73) Invited Speaker, 4th Conference on Homogeneous Catalysis, sponsored by Office of Basic Energy Sciences, U. S. Dept. of Energy, Johns Hopkins University, Baltimore, MD, June 3-7, 1998

74) Speaker, 18th International Conference on Organometallic Chemistry, Munich, Germany, August 16-21, 1998.

75) J. L. Perrin, R. D. Adams and J. W. Long IV, "A New Route to Dihydrodithins by a Catalytic Reaction of Vinylthiiranes", 50th Southeast Regional meeting of the American Chemical Society in Research Park Triangle, NC, Nov. 4-7, 1998.

76) L. K. Yeung, B. Zhang, R. D. Adams and C. J. Murphy, Well-Defined Semiconductor Nanoparticles with Tunable Photphysical Properties, 216th National ACS meeting, Summer 1998 Meeting, August 23-27, Boston.

77) L. K. Yeung, K. Sooklal, R. Mahtab, B. Zhang, R. D. Adams and C. J. Murphy, A Comparison Of The Photophysical Properties Of Thiolate-Capped Cds Quantum Dots With Thiolate-Capped CdS Molecular Clusters, Materials Research Society, Spring 1998 Meeting, April 5-9, San Francisco.

78) Poster Presentation, Kellie M. Brosius and Richard D. Adams, The Catalytic Synthesis Of 1,3-Dioxolanes By The

Addition Of Ketones To Oxiranes By $[Cp^*Ir(NCMe)_3]^{2+}$, American Chemical Society National Meeting, Anaheim, CA, March, 1999.

79) Joseph L. Perrin and Richard D. Adams, Catalytic Transformations of Vinylthiiranes by Tungsten Carbonyl Complexes. A New Route to 3,6-Dihydro-1,2-dithiins American Chemical Society National Meeting, Anaheim, CA, March, 1999.

80) Poster Presentation, Bin Zhang and Richard D. Adams, Halide Enhancement of the Luminescence of $Cd_{10}S_4$ Thiolate Clusters, American Chemical Society National Meeting, Anaheim, CA, March, 1999.

81) Poster Presentation, R. D. Adams and J. L. Perrin, "A New Route to Dihydrodithins by a Catalytic Reaction of Vinylthiiranes", PreOMCOS 10, Rennes, France, July 14-15, 1999.

82) R. D. Adams and J. L. Perrin, "A New Route to Dihydrodithins by a Catalytic Reaction of Vinylthiiranes", OMCOS 10, Versailles, France, July 18-22, 1999.

83) Invited Speaker, Symposium on Frontiers in Organometallic Chemistry, 218th National Meeting of the American Chemical Society in New Orleans, LA, August 21-25, 1999.

84) Frontier's Lecturer, University of Toledo, Toledo, OH, September 27, 1999.

85) Poster Presentation, A New Route to Dihydrodithins by a Catalytic Reaction of Vinylthiiranes, Symposium on Trends in Transition Metal Chemistry: Toward the Third Millennium, Pisa, Italy, February 24 -27, 2000.

86) Speaker, The Effect of Coordinated Metals on the Electrochemical Response of Bis-Ferrocenylbutadiyne, Workshop on Carbon-Rich Organometallic Compounds, Erlangen, Germany, July 16-20, 2000.

87) Invited Speaker, Symposium on "Inorganic, Organometallic and Biological Chemistry of Metal Sulfides", Pacifichem2000, Honolulu, HA, Dec. 14-18,2000.

88) Invited Speaker, Symposium on "High Nuclearity Clusters", Pacifichem2000, Honolulu, HA, Dec. 14-18,2000.

89) Invited Speaker, Effect of metal atoms on the electrochemical response of ferrocenyl groups in bis-ferrocenyl polyynes, F. A. Cotton Organometallics Award Symposium, 221st National meeting of the American Chemical Society, San Diego, CA April 1 - 5, 2001.

90) R. D. Adams, Kellie Brosius and O Sung Kwon, Formation of Thiacrown Macrocycles from Thiirane by Metal Carbonyl Catalysts, Southeast Regional meeting of ACS, Savannah, GA, September 23-26, 2001.

91) R. D. Adams, B. Captain and W. Fu, "The Coordination of Phosphines to Carbido Clusters", Southeast Regional meeting of ACS, Savannah, GA, September 23-26, 2001.

92) R. D. Adams, Bo Qu and O Sung Kwon, Metal-Coordinated Polyynes with Ferrocenyl End Groups, Southeast Regional meeting of ACS, Savannah, GA, September 23-26, 2001.

93) R. D. Adams, O-Sung Kwon, Mark Smith, Investigation of structure and reactivity of new dimanganese-disulfide complexes, Southeast Regional meeting of ACS, Savannah, GA, September 23-26, 2001.

94) Richard D. Adams, Kellie Brosius, and O Sung Kwon, Catalytic Synthesis of Thiacrowns from Thietanes and Thiiranes, OMCOS 11, Taipei, Taiwan, July 22-26, 2001.

95) Richard D. Adams, The Synthesis and Catalytic Properties of Metal Segregated Platinum-Ruthenium Cluster Complexes, CREST Symposium, Tokyo, Japan, July 29–31, 2001.

96) Richard D. Adams, The Catalytic Synthesis of Thiacrowns, Symposium on Frontiers in Organometallic Chemistry, 222nd National Meeting of the American Chemical Society, Chicago, IL, August 26–30, 2001.

97) Richard D. Adams, Burjor Captain, Wei Fu and Mark D. Smith, Novel Structures and Dynamics of Ruthenium Clusters Containing the Bulky Tri(t-butyl)phosphine Ligand Bonded to Palladium or Platinum 35th International Conference on Coordination Chemistry, Heidelberg, Germany, July 21-26, 2002.

98) Richard D. Adams, Kellie M. Brosius, O Sung Kwon, and John H. Yamamoto The Catalytic Synthesis of Thiacrowns from Thiiranes, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.

99) Richard D. Adams and Bo Qu The Effect of Metals on Electronic Communication Through Conjugated Polyynes, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.

100) Richard D. Adams, The 50th Anniversary of the Discovery of Ferrocene, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.

101) Shaobin Miao, O-Sung Kwon, Richard D Adams, The Synthesis and Reactivity of New Mixed-Metal Disulfide Complexes, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.

102) Richard D. Adams, Burjor Captain, Wei Fu and Mark D. Smith, Metalation of Transition Metal Carbonyl Clusters by Palladium and Platinum Groupings, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.

103) R. D. Adams, Invited Speaker, International Workshop on Carbon-Rich Molecular and Nano-Scale materials, University of Hong Kong, Hong Kong, January 12-14, 2003.

104) Richard D. Adams, Disulfide Complexes of Manganese Carbonyls, in Symposium on Exploring the Interface of Main Group Element and Transition Metal Chemistry, 224th National Meeting of the American Chemical Society, New Orleans, LA, March 23–27, 2003.

105) R. D. Adams, Section Lecturer, 11th International Symposium on Homogeneous and Heterogeneous Catalysis,

Northwestern University, Evanston, IL, July 20 – 25, 2003.

106) R. D. Adams, Novel Structures and Molecular Dynamics of Ruthenium Clusters Containing Tri(t-butyl)phosphine Palladium and Platinum Groups, Symposium on Binuclear and Cluster Chemistry with Polyunsaturated Ligands, Canadian Society for Chemistry National meeting, Ottawa, Ontario August 11-13, 2003.

107) Richard D. Adams, The Chemistry of Bis(ferrocenyl)polyynes in Metal Cluster Complexes, Symposium on Carbon-Rich Organometallic Compounds, 225th National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003.

108) Richard D. Adams, Reactions of $Mn(CO)_7(\mu\text{-}S_2)$, Symposium on Frontiers in Organometallic Chemistry, 225th National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003.

109) Richard D. Adams, Structures, Dynamics and Catalytic Properties of Bimetallic Cluster Complexes, Eighth MIT/Bruker-Nonius Symposium on Structural Chemistry, MIT, Boston, MA Oct. 25, 2003.

110) Richard D. Adams, Burjor Captain, Lei Zhu, Novel Structures and Molecular Dynamics of Platinum-Ruthenium Cluster Complexes and their Activity for Catalytic Hydrogenation of Alkynes, Southeast Regional meeting of the ACS SERMACS2003, Atlanta, Ga, Nov. 16-19, 2003.

111) Shaobin Miao, Richard D Adams, The Synthesis and Reactivity of New Sulfido Mixed-Metal Complexes, Southeast Regional meeting of the ACS SERMACS2003, Atlanta, Ga, Nov. 16-19, 2003.

112) Jack Smith and Richard D. Adams, Synthesis and Properties of Rhodium and Iridium Clusters Containing Tin and Germanium Ligands, USC NanoCenter Symposium VI Catalysis on the Nanoscale, USC Columbia, April 16-17, 2004.

113) Burjor Captain, Lei Zhu and Richard D. Adams, Bimetallic Ru-Pt and Ru-Pd Cluster Complexes: Synthesis,

Structures and Catalysis., USC NanoCenter Symposium VI Catalysis on the Nanoscale, USC Columbia, April 16-17, 2004.

114) R. D. Adams, New Platinum-Ruthenium and -Rhodium Cluster Complexes: Structures, Molecular Dynamics and Hydrogenation Catalysis, International Symposium on Homogeneous Catalysis, Munich, Germany, July 5-9, 2004

115) R. D. Adams, B. Captain, L. Zhu, New Platinum-Ruthenium and –Rhodium Cluster Complexes: Synthesis, Molecular Dynamics and Catalytic Activity, Symposium on Inorganic/Organometallic Clusters and Polymers: Synthesis and Applications, Canadian Society for Chemistry National Meeting, London, Ontario, May 29-31, 2004.

116) Richard D. Adams, Bimetallic Cluster Complexes and Bimetallic Catalysts, Tobinstock Symposium on Organometallic Chemistry, Northwestern University, Evanston, IL Nov. 5-7, 2004.

117) Jack L. Smith, Jr., Richard D. Adams and Burjor Captain, Synthesis, Structure, and Bonding of Rhodium and Iridium Bimetallic Clusters Containing Main Group Elements, 56th Southeast Regional meeting of the ACS SERMACS2004, Raleigh, NC, Nov. 11-13, 2004.

118) Shaobin Miao and Richard D. Adams, Light-Promoted Addition of Unsaturated Molecules to the Disulfido Ligand in the Complex, $CpMoMn(CO)_5(\mu\text{-}S_2)$, 56th Southeast Regional meeting of the ACS SERMACS2004, Raleigh, NC, Nov. 11-13, 2004.

119) Burjor Captain and Richard D. Adams, A New Highly Unsaturated Platinum-Rhenium Cluster Complex Adds a Large Amount of Hydrogen, 230th National Meeting of the American Chemical Society, Washington, D.C., August 28 - September 1, 2005.

120) Richard D. Adams, Burjor Captain and Lei Zhu, Metal Cluster Complexes Containing Unsaturated Platinum Tri-t-butylphosphine Groups and their Applications for Catalytic Alkyne Hydrogenation, Symposium on New Organometallic Complexes for Applications in Homogeneous

Catalysis, Pacifichem 2005, Honolulu, HW, December 15 - 20, 2005.

121) Richard D. Adams and Burjor Captain, A New Highly Unsaturated Platinum-Rhenium Cluster Complex Adds a Large Amount of Hydrogen, Symposium on Metal Hydrides and Dihydrogen Complexes, Pacifichem 2005, Honolulu, HW, December 15 - 20, 2005.

122) Richard D. Adams, Burjor Captain, Jack L. Smith, Jr., Lei Zhu,, Transition Metal Cluster Complexes Containing Large Numbers of Tin Ligands, Symposium on Clusters and Polynuclear Metal complexes, 231st National meeting of American Chemical Society, Atlanta, GA March 26 - 31, 2006.

123) Richard D. Adams, Burjor Captain, Wei Fu, Jack Smith and Lei Zhu, Synthesis, Structures and Properties of Unsaturated Bimetallic Transition Metal Carbonyl Clusters Containing $Pd(PBu^t_3)$ and $Pt(PBu^t_3)$ Groups, Cotton Symposium, 231st National meeting of American Chemical Society, Atlanta, GA March 26 - 31, 2006.

124) Richard D. Adams, Attilio Siani, Burjor Captain, Oleg S. Alexeev and Michael D. Amiridis, Synthesis and Studies of Bimetallic Catalysts in Solution and on Supports, DOE Catalysis Conference, Chesapeake, Md, May 21 -24, 2006

125) Burjor Captain and Richard D. Adams, Hydrogen activation by highly unsaturated bimetallic platinum-rhenium carbonyl cluster complexes, 232st National meeting of American Chemical Society, San Francisco, CA September 10 - 14, 2006.

126) Richard D. Adams, Burjor Captain, Robert Raja, John M. Thomas and Lei Zhu, Transition Metal Cluster Complexes Containing Tin Ligands and their use as Precursors for Hydrogenation Catalysis, 232st National meeting of American Chemical Society, San Francisco, CA September 10 - 14, 2006.

127) Attilio Siani, Burjor Captain, Oleg S. Alexeev, Eirini Stafyla, Ana B. Hungria, Paul A. Midgley, John M. Thomas, Richard D. Adams and Michael D. Amiridis, Improved Co Oxidation Activity in the Presence and

Absence of Hydrogen over Cluster-Derived PtFe/SiO2 Catalysts, AICHE 2006 Annual meeting, San Francisco, November 12-17, 2006.

128) Lei Zhu, Burjor Captain and Richard D. Adams, Structure and Properties of New Bimetallic Os-Sn Cluster Complexes and their Reactions with $Pt(PBu^t_3)_2$, 58th Southeast Regional meeting of the ACS SERMACS2006, Augusta, GA, Nov. 1-4, 2006.

129) Erin M. Boswell, Burjor Captain and Richard D. Adams, Syntheses and Structures of Bimetallic Ru-Sn Clusters, 58th Southeast Regional meeting of the ACS SERMACS2006, Augusta, GA, Nov. 1-4, 2006.

130) Michael D. Amiridis, Attilio Siani, Oleg S. Alexeev, Burjor Captain, and Richard D. Adams Structure and reactivity of model cluster-derived PtFe/SiO2 catalysts, 233rd ACS National Meeting, Chicago, IL, March 25-29, 2007.

131) Richard D. Adams, Invited Speaker, Symposium on Molecular and Nanoscale Metal Clusters, National University of Singapore, May 10-11, 2007.

132) Richard D. Adams, Burjor Captain, New Directions for Hydrogen Activation and Catalytic Hydrogenations Frontiers in Organometallic Chemistry Symposium, 234th National meeting of American Chemical Society, Boston, MA August 19-23, 2007.

133) Karen J. Uffalussy, Burjor Captain, Richard D. Adams, Ana B. Hungria, John Monnier and Michael D. Amiridis, Kinetic Characterization of Multimetallic Cluster Derived Catalysts Used for the Selective Hydrogenation of Citral, AICHE 2007 Annual meeting, Salt Lake City, November 4-9, 2007.

134) Two Thumbs Up Award – USC Office of Student Disability Services – for positive impact on the success of a student with a disability.

135) Richard D. Adams, Chini Memorial Award Lectureship, "New Directions for Hydrogen Activation and Catalytic

Hydrogenations", National Meeting of the Italian Chemical Society, Milan, Italy, Sept 3-6, 2007.

136) Richard D. Adams, "New Directions for Hydrogen Activation and Catalytic Hydrogenations Using Mixed Metal Cluster Complexes", Symposium on Metal-rich Compounds, Forschungszentrum Karlsruhe, Karlsruhe, Germany, October 7-9, 2007.

137) Richard D. Adams, Burjor Captain, Lei Zhu, New Directions for Hydrogen Activation and Catalytic Hydrogenations Using Mixed Metal Cluster Complexes, Southeast Regional meeting of the ACS, SERMACS2007, Greenville, SC, Oct 24-26, 2007.

138) Richard D. Adams and Burjor Captain, "New Directions for Hydrogen Activation and Catalytic Hydrogenations", Symposium on Turning Points in Solid-State, Materials and Surface Science, University of Cambridge, December, 14-15, 2007.

139) Richard D. Adams, New Directions for Hydrogen Activation by Using Unsaturated Mixed Metal Cluster Complexes, Cotton Symposium, 235th National meeting of American Chemical Society, New Orleans, LA, April 6 - 10, 2008.

140) Richard D. Adams, John Meurig Thomas and Robert Raja, Metal Carbonyl Cluster Complexes Containing Tin Ligands and their Applications to Hydrogenation Catalysis, Marks Symposium, 235th National meeting of American Chemical Society, New Orleans, LA, April 6 - 10, 2008.

141) Karen J. Uffalussy, Burjor Captain, Richard D. Adams, Ana B. Hungria, John Monnier and Michael D. Amiridis, Kinetic Characterization of Multimetallic Cluster Derived Catalysts Used for the Selective Hydrogenation of Citral, AICHE 2008 Annual meeting, Philadelphia, November 16-21, 2008.

142) Richard D. Adams, The Modifying Effects of Tin on Catalytic Hydrogenations by Metal Clusters and Nanoparticles, Conference on Functional Materials, Goa, India, August 14-16, 2009

143) Richard D. Adams and W. C. Pearl, Jr. New Inorganic Ring Systems based on Polynuclear Rhenium Carbonyls with bridging Antimony and Bismuth Ligands. 12th International Symposium on Inorganic Ring Systems, Goa, India, August 16-21, 2009

144) Richard D. Adams, Mixed-metal cluster complexes and their use as precursors to bimetallic nanoparticles for superior heterogeneous catalysts, 239th National meeting of American Chemical Society, San Francisco, CA, March 21 - 25, 2010.

145) Richard D. Adams, Mixed-metal cluster complexes and their use as precursors to bimetallic nanoparticles for superior heterogeneous catalysts, The Inaugural (1ST) International Conference on Molecular and Functional Catalysis, Singapore, July 11-15, 2010.

146) Richard D. Adams and William C. Pearl, Jr. Rhenium Carbonyl Cluster Complexes containing Antimony and Bismuth Ligands and Applications for Catalysis, 24th International Conference on Organometallic Chemsitry, Taipei, Taiwan, July 18-23, 2010.

147) Richard D. Adams, Mixed-metal cluster complexes and their use as precursors to bimetallic nanoparticles for superior heterogeneous catalysts, SNIC The Inaugural (1ST) International Conference on Molecular and Functional Catalysis, Singapore, July 11-15, 2010.

148) Richard D. Adams and William C. Pearl, Jr. Rhenium Carbonyl Cluster Complexes containing Antimony and Bismuth Ligands and Applications for Catalysis, JOM Symposium on Frontiers in Organometallic Chemistry, Pacifichem 2010, Honolulu, HW, December 15 - 20, 2010.

149) Richard D. Adams, Synthesis and Transformations of New Gold-Iridium and Gold-Osmium Carbonyl Cluster Complexes, Bruce M. Foxman Symposium, American Crystallographic Assn., July 29 – August 1, 2012, Boston, MA.

150) Richard D. Adams, Mingwei Chen, Xinzheng Yang, Qiang Zhang, Synthesis and Transformations of New Gold-Iridium and Gold-Osmium Carbonyl Cluster Complexes, 244th

National meeting of the ACS, Philadelphia, PA, August 19 - 23, 2012.

151) Mingwei Chen and Richard D. Adams, Iridium-Gold Cluster Compounds. Syntheses, Structures and An Unusual Ligand-Induced Skeletal Rearrangement, 244th National meeting of the ACS, Philadelphia, PA, August 19 - 23, 2012.

152) Richard D. Adams, Mingwei Chen, Xinzheng Yang, Qiang Zhang, Synthesis and Transformations of New Gold-Iridium and Gold-Osmium Carbonyl Cluster Complexes, 25th International Conference on Organometallic Chemistry, Lisbon, Portugal, September 3 - 7, 2012.

153) Karen J. Uffalussy, Burjor Captain, Ana B. Hungria, Richard D. Adams, John R. Monnier and Michael D. Amiridis, Chemical Characterization of Pt, Ru, and Sn Multimetallic Catalysts, AIChE 2012 Annual Meeting, Oct. 28 - Nov. 2, 2012, Pittsburgh, PA.

154) R. D. Adams, M. Chen, Y. Kan, V. Rassolov and Q. Zhang,, Oxidative Addition of Au – C Bonds to Polynuclear Metal Carbonyl Complexes, 245th National meeting of the ACS, New Orleans, LA, April 7-11, 2013.

155) R. D. Adams, M. Chen, V. Rassolov, Y. Wong, X. Yang and Q. Zhang, Coordination Chemistry between two metal atoms – The Unusual Coordination Chemistry of Bridging Aryl Ligands, 246th National meeting of the ACS, Indianapolis, IN, September 8 - 12, 2013.

156) R. D. Adams, M. Chen, V. Rassolov, Y. Wong, and Q. Zhang, The Coordination Chemistry of Bridging Aryl Ligands in Metal Carbonyl Cluster Complexes, Keynote Lecture, 41st International Conference on Coordination Chemistry, Singapore, July 21 - 25, 2014.

157) G. Elpitiya, R. D. Adams, M. Chen, M. Potter, R. Raja., Polynuclear iridium-bismuth carbonyl clusters: Synthesis, Chemistry and Applications- 66th Southeastern Regional Meeting of the American Chemical Society, Nashville, TN, October 16-19, 2014.

158) R. D. Adams, The Coordination Chemistry of Bridging Aryl Ligands in Metal Carbonyl Cluster Complexes, Asian Conference on Coordination Chemistry 5, (ACCC5) Hong Kong, July 12 - 16, 2015.

159) G.Elpitiya, R. D. Adams, Iridium - Bismuth compounds: New Directions for Chemistry and Selective Oxidation Catalysis - Spring National Meeting of the American Chemical Society, Denver, CO (March, 2015).

160) Z. Luo, R. D. Adams, Os-Au/Hg Cluster Chemistry: Fundamentals of multicenter C-H bond transformation and C-C coupling, Gordon Research Seminar, Newport, RI, July 11-July 12, 2015.

161) Florida Award Lecture, R. D. Adams, The Coordination Chemistry of Bridging Aryl Ligands in Metal Carbonyl Cluster Complexes, Florida Section ACS Meeting, Palm Harbor, FL, May 5-7, 2016.

162) R. D. Adams, *Priestly Medal Symposium*, The Activation of Aromatic C-Au and C-H Bonds by Polynuclear Metal Carbonyl Cluster Complexes, 253rd ACS National Meeting, San Francisco, CA, April 2-6, 2017.

163) R. D. Adams, The Activation of Aromatic C-Au and C-H Bonds by Polynuclear Metal Carbonyl Cluster Complexes, *Cotton Symposium*, Texas A & M University, College Station, TX, April 28 – 29, 2017.

164) Poonam Dhull and R. D. Adams, Multiple Aromatic C-H Bond Activations by a Dirhenium Carbonyl Complex, 69th Southeastern Regional Meeting of the American Chemical Society, Charlotte, NC, November 8-11, 2017.

165) Jonathan D. Tedder and R. D. Adams, C-H Activation at Multinuclear Metal Sites, 69th Southeastern Regional Meeting of the American Chemical Society, Charlotte, NC, November 8-11, 2017.

166) Poonam Dhull and R. D. Adams, Multiple Aromatic C-H Bond Activations by a Dirhenium Carbonyl Complex, 255th ACS National Meeting, New Orleans, LA, March 18-22, 2018.

167) Poonam Dhull and R. D. Adams, Multiple Aromatic C-H Bond Activations of Polycyclic Aromatic Hydrocarbons by an Unsaturated Dirhenium Carbonyl Complex, Southeast Regional Meeting of the ACS, Augusta, GA, October 31 – November 3, 2018.

168) Nutan Wakdikar, R. D. Adams and J. D. Tedder, Heterometallic Nitrido Cluster Compounds: Synthesis and characterizations of the first nitride containing ruthenium-gold and ruthenium-copper carbonyl cluster complexes, Southeast Regional Meeting of the ACS, Augusta, GA, October 31 – November 3, 2018.

Richard D. Adams

University and Industrial Research Lectures 1980-present

1. **M.I.T., Cambridge, MA**
2. **University of Wisconsin, Madison, WI**
3. **University of Illinois, Urbana, IL**
4. **Northwestern University, Evanston, IL**
5. **Ohio State University, Columbus, OH**
6. **University of Kentucky, Lexington, KY**
7. **Dow Chemical Company, Wayland, MA**
8. **Columbia University, New York, NY**
9. **University of California at Irvine,**
10. **Cambridge University, Cambridge, U.K.**
11. **University of Pittsburgh, Pittsburgh, PA**
12. **California Institute of Technology, Pasadena, CA**
13. **University of California, Los Angeles, CA**
14. **Stanford University, Palo Alto, CA**

15. **University of California, Berkeley, CA**
16. **Case Western Reserve University, Cleveland, OH**
17. **Pennsylvania State University, State College, PA**
18. **University of Washington, Seattle, WA**
19. **Washington University, St. Louis, MO**
20. **Colby College, Waterville, ME**
21. **Michigan State University, East Lansing, MI**
22. **University of Michigan, Ann Arbor, MI**
23. **University of California, Santa Barbara, CA**
24. **University of Southern California, Los Angeles, CA**
25. **California State University, Northridge, CA**
26. **Rensselaer Polytechnic Institute, Troy, NY**
27. **Oregon State University, Corvallis, OR**
28. **University of Pittsburgh, Pittsburgh, PA**
29. **Lehigh University, Allentown, PA**
30. **University of Amsterdam, Amsterdam, The Netherlands**
31. **University of Rennes, Rennes, France**
32. **Cambridge University, Cambridge, U.K.**
33. **East Carolina University, Greenville, NC**
34. **Clemson University, Clemson, SC**
35. **University of Waterloo, Waterloo, Ont., Canada**
36. **Brandeis University, Waltham, MA**
37. **Northwestern University, Evanston, IL**
38. **University of Illinois at Chicago, Chicago, IL**
39. **University of Illinois, Urbana, IL**
40. **University of South Carolina, Columbia, SC**

41. McGill University, Montreal, Quebec, Canada
42. Queen's University, Kingston, Ontario, Canada
43. University of Toronto, Toronto, Ontario, Canada
44. General Electric Co., Schenectady, NY
45. Union College, Schenectady, NY
46. M. I. T., Cambridge, MA
47. Universite de Lausanne, Lausanne, Switzerland
48. E. T. H., Zurich, Switzerland
49. Universite Louis Pasteur, Strasbourg, France
50. University of North Carolina, Greensboro, NC
51. Louisiana State University, Baton Rouge, LA
52. Ethyl Corp., Baton Rouge, LA
53. Tulane University, New Orleans, LA
54. University of Texas, Austin, TX
55. Texas A & M University, College Station, TX
56. Ohio State University, Columbus, OH
57. Bowling Green State University, Bowling Green, OH
58. Purdue University, West Lafayette, IN
59. Indiana University, Bloomington, IN
60. Lander College, Greenwood SC
61. University of Maryland, College Park, MD
62. Hoechst-Celanese, Corpus Christi, TX
63. University of Tokyo, Tokyo, Japan
64. University of British Columbia, Vancouver, BC, Canada
65. Simon Fraser University, Burnaby, BC, Canada
66. Syracuse University, Syracuse, NY

67. **Rider College, Lawrenceville, NJ**
68. **Exxon Research & Development Co., Annandale, NJ**
69. **Université de Lausanne, Lausanne, Switzerland**
70. **Université de Neuchatel, Neuchatel, Switzerland**
71. **Pierre et Marie Curie Université, Paris, France**
72. **Université de Paris - Sud, Orsay, France**
73. **University of Windsor, Windsor, Ontario, Canada**
74. **Wayne State University, Detroit, MI**
75. **University of Tennessee, Knoxville, TN**
76. **Vanderbilt University, Nashville, TN**
77. **Winston-Salem State University, Winston-Salem, NC**
78. **University of New Mexico, Albuquerque, NM**
79. **University of Missouri, Columbia, MO**
80. **University of South Carolina, Columbia, SC**
81. **Université Louis Pasteur, Strasbourg, France**
82. **Universität Karlsruhe, Karlsruhe, Germany**
83. **Laboratoire de Chimie de Coord. du CNRS, Toulouse, France**
84. **Université de Paris VI, Paris, France**
85. **University of Bristol, Bristol, England**
86. **University of Edinburg, Edinburgh, Scotland, UK**
87. **University of Durham, Durham, England, UK**
88. **University of Glasgow, Glasgow, Scotland, UK**
89. **University College London, London, England, UK**
90. **Imperial College of Science and Tech., London, England, UK**
91. **Florida State University, Tallahasse, FL**
92. **National Sun Yet-Sen University, Kaoshiung, Taiwan**

93. Catalyst Research Center, Hsinchu, Taiwan

94. Union Chemical Laboratory, Hsinchu, Taiwan

95. National Tsinghua University, Hsinchu, Taiwan

96. Academia Sinica, Taipei, Taiwan

97. National Taiwan University, Taipei, Taiwan

98. University of Virginia, Charlottesville, VA

99. Georgia Institute of Technology, Atlanta, GA

100. University of Georgia, Athens, GA

101. University of Waterloo, Kitchener, Ontario, Canada

102. University of Alabama, Tuscaloosa, AL

103. Mississippi State University, Starkville, MS

104. University of Utah, Salt Lake City, UT

105. Massachusetts Institute of Technology, Cambridge, MA

106. Emory University, Atlanta, GA

107. Texas A & M University, College Station, TX

108. Rice University, Houston, TX

109. University of Nebraska, Lincoln, NE

110. Steacie Institute, N. R. C., Ottawa, Ontario, Canada

111. McGill University, Montreal, Quebec, Canada

112. Queen's University, Kingston, Ontario, Canada

113. Ecole Nationale Superieux de Chimie de Paris, Université de Paris VI, Paris, France, 1998

114. University Karlsruhe, Karlsruhe, Germany, 1998

115. University of Louis Pasteur, Strasbourg, France, 1998

116. **University of Erlangen, Erlangen, Germany, 1998**

117. **University of Bordeaux, Bordeaux, France, 1999**

118. **Université Louis Pasteur, Strasbourg, France, 1999**

119. **Laboratoire de Chimie de Coord. du CNRS, Toulouse, France, 1999**

120. **Ecole National Superieux de Chimie de Paris, Université de Paris VI, Paris, France, 1999**

121. **University of Dijon, Dijon, France, 1999**

122. **Ecole Polytechnique, Palaiseau, France, 1999**

123. **Frontier's Lecturer, University of Toledo, Ohio 1999**

124. **Inorganic Chemistry Award Lecturer, Northwestern University, 1999**

125. **University of Chicago, Chicago, IL 1999**

126. **University of Illinois, Urbana, IL 1999**

127. **University of Maryland, College Park, MD, 1999**

128. **University of South Florida, Tampa, FL, 1999**

129. **University of Göttingen, Göttingen, Germany, 2000**

130. **Technische Universität Munich, Munich, Germany, 2000**

131. **Ludwig Maximillian Universität, Munich, Germany, 2000**

132. **University of Modena, Modena, Italy, 2000**

133. **University of Bologna, Bologna, Italy, 2000**

134. **University of Padua, Padua, Italy, 2000**

135. **University of Milan, Milan, Italy, 2000**

136. **University of Heidelberg, Heidelberg, Germany, 2000**

137. **University of Mainz, Mainz, Germany, 2000**

138. University of Bonn, Bonn, Germany, 2000

139. University of Basel, Basel, Switzerland, 2000

140. University of Konstanz, Konstanz, Germany, 2000

141. University of Muenster, Muenster, Germany, 2000

142. University of Essen, Essen, Germany, 2000

143. University of Bielefeld, Bielefeld, Germany, 2000

144. University of Rennes, Rennes, France, 2000

145. Chemical Society of Berlin, Technical University of Berlin, 2000

146. University of Marburg, Marburg, Germany, 2000

147. Johnson-Matthey Inc., Philadelphia, PA 2000

148. Brandeis University, Waltham, MA 2000

149. Yale University, New Haven, CT 2000

150. Utah State University, Logan, UT 2000

151. University of Montana, Missoula, MT 2000

152. University of Utah, Salt Lake City, UT 2000

153. University of South Carolina, Columbia, SC 2000.

154. Texas A & M University, College Station, TX 2001.

155. University of Houston, Houston, TX 2001.

156. California State University, Northridge, CA 2001.

157. University of Southern California, Los Angeles, CA 2001

158. University of Hong Kong, Hong Kong, 2001

159. Chinese University of Hong Kong, Hong Kong, 2001.

160. **Industrial Institute of Research and Technology, Hsinchu, Taiwan**

161. **National Taiwan University, Taipei, Taiwan, 2001.**

162. **Academia Sinica, Taipei, Taiwan, 2001.**

163. **Tokyo University of Agriculture and Technology, Tokyo.**

164. **Tokyo Institute of Technology, Tokyo, Japan, 2001.**

165. **College of Charleston, Charleston, SC, 2001.**

166. **Vanderbilt University, Nashville, TN, 2001.**

167. **University of Texas, Austin, TX, 2002.**

168. **Baylor University, Waco, TX, 2002.**

169. **University of Frankfurt, Frankfurt, Germany, 2002.**

170. **University of Kassel, Kassel, Germany, 2002.**

171. **Hong Kong Baptist University, Hong Kong, 2003.**

172. **Roche Carolina, Florence, SC September 2003**

173. **Brandeis University, Waltham, MA 2003**

174. **University of Tennessee, Knoxville, TN 2004**

175. **University of Stockholm, Stockholm, Sweden, 2004**

176. **Cambridge University, Cambridge, UK, 2006**

177. **University of Louis Pasteur, Strasbourg, FR, 2007**

178. **Ecole Nationale Superieux de Chimie de Paris, Université de Paris VI, Paris, France, 2007.**

179. **Cambridge University, Cambridge, UK, 2007**

180. **CINVESTAV, Mexico City, Mexico, 2008**

181. **National Autonomous University of Mexico (UNAM), Mexico City, Mexico, 2008**

182. **Hong Kong Baptist University, Hong Kong 2010**

183. **City University, Hong Kong 2010**

184. **Hong Kong Polytechnical University, Hong Kong 2010**

185. **Virginia Tech, Blacksburg, VA 2011**

186. **Texas A & M University, College Station, TX 2011**

187. **University of South Carolina (Physics Colloquium on X-ray diffraction 100 years), Sept. 2012**

188. **University of Miami, March 2015.**

189. **City University, Hong Kong, PRC, 2015.**

190. **University of North Texas, Denton, TX, 2016.**

Student Theses and Degrees Completed Under the Direction of Richard Adams

At The State University of New York at Buffalo

1) **Daniel F. Chodosh, Ph.D., 1977, Deceased 1995, Synthesis and Characterization of Organometallic Compounds Containing Novel Ligands.**

At Yale University

1) **Nancy M. Golembeski, Ph.D., 1979, Unusual Ligand Transformations and Their Role in the Cluster-Assisted Hydrogenation of Small Molecules.**

2) **Li-Wu Yang, Ph.D., 1982, Synthesis and Reactivity of High Nuclearity Sulfido-Osmium Clusters and Aspects of the Reactivity of Nitriles with Hydrido Osmium Carbonyl Clusters.**

3) **Suning Wang, Ph.D., 1986, Deceased 2021, The Reactions of Sulfur-Bridged Tetranuclear and Pentanuclear Osmium Carbonyl Clusters with Small Molecules.**

4) **Hoon-Sik Kim, Ph.D., 1986, Novel Ligand Transformations and Catalytic Transalkylation of Tertiary Amines by Osmium Carbonyl Cluster Complexes.**

5) **Detlef Mannig, M.S., 1983.**

At University of South Carolina

1) **James E. Babin, Ph.D., 1988, Studies on the Synthesis, Structure and Reactivity of Carbene and Related Ligands on Transition Metal Clusters.**

2) **Jonathon Kuhns, M.S., 1988, The Synthesis and Characterization of a Rhenium Triflate Complex, a Dirhenium Bridging Hydrido Complex and a Diruthenium Cobalt Mixed-Metal Sulfido Complex.**

3) **Thomas A. Wolfe, Ph.D., 1989, Synthesis and Catalytic**

Studies of Transition Metal Clusters of Ruthenium and Osmium.

4) **Jin-Guu Wang, Ph.D., 1989, Synthesis and Structure of Sulfido Cluster Compounds.**

5) **James T. Tanner, Ph.D., 1990, Studies of Ruthenium and Osmium Cluster Complexes Containing Tertiary Amines and Related Ligands.**

6) **Gong Chen, Ph.D., 1991, Syntheses and Transformations of Aminocarbene and Related Ligands in Metal Cluster Complexes.**

7) **Michael P. Pompeo, Ph.D., 1992, Studies of the Coordination and Ring-Opening Transformations of Thietane Ligands in Triosmium Carbonyl Cluster Complexes.**

8) **Jau-Ching Lii, Ph.D., 1992, Synthesis, Structural Characterization and Reactivity Study of Heteronuclear Cluster Complexes Containing Platinum.**

9) **Judy A. Belinski, Ph.D., 1992, New Transformations of Small Organic Molecules by Metal Carbonyl Cluster Complexes.**

10) **Wengan Wu, Ph.D., 1993, The Synthetic, Structural and Reactivity Studies of Platinum-Ruthenium and Platinum-Osmium Carbonyl Cluster Complexes.**

11) **Linfeng Chen, Ph.D., 1994, Transformations and Functionalizations of Alkynes with Electron-Withdrawing or Electron-Donating Substitutents by Dirhenium and Dimanganese Carbonyl Complexes.**

12) **Zhaoyang Li, Ph.D., 1994, Studies of the Syntheses, Structures and Catalytic Properties of High Nuclearity Platinum-Ruthenium Cluster Complexes.**

13) **Jeffrey E. Cortopassi, Ph.D., 1994, Syntheses and Characterization of Trialkoxysilyl Containing Transition Metal Cluster Complexes.**

14) **Xiasu Qu, Ph.D., 1995, deceased 2003, The Synthesis, Structures and Reactivity of Cyclobutyne Ligands on**

Transition Metal Cluster Complexes.

15) **Stephen B. Falloon, Ph.D., 1995, Activation and Catalytic Cyclooligomerization of Thietane on Transition Metal Clusters.**

16) **Ralph Layland, Ph.D. 1996, The Synthesis, Characterization and Magnetic Properties of Mixed Metal Oxides Produced at High Temperatures.**

17) **John H. Yamamoto, Ph.D. 1996, Studies of Ring Opening of Cyclic Thioethers by Metal Carbonyls.**

18) **Mingsheng Huang, Ph.D. 1997, The Activation and Transformation of Some Unsaturated Molecules by Dinuclear Metal Carbonyl Complexes**

19) **Thomas Barnard, Ph.D. 1997, The Syntheses, Structures and Catalytic Properties of High-Nuclearity Layer-Segregated Platinum-Ruthenium Cluster Complexes**

20) **Wen Huang, M. S. 1997, Catalytic Ring Opening of □-Propiothiolactones by Dirhenium and Dimanganese Carbonyl Complexes**

21) **Kenneth McBride, Ph.D., 1998, New Chemistry of Sulfur and Selenium Macrocycles**

22) **Joseph Perrin, Ph.D., 1999, Catalytic Transformations of Substituted Thietanes and Thiiranes**

23) **Kellie Brosius, Ph.D., 2002, Ring Opening Reactions of Small Heterocyclic Compounds Catalyzed by Transition Metal Complexes**

24) **Wei Fu, Ph.D., 2002, The Synthesis and Reactivity of Phosphine Derivatives of Metal Carbonyl Clusters**

25) **Bo Qu, Ph.D., 2002, Effect of Metals on the Electronic Communication through Model Molecular Wires**

26) **O-Sung Kwon, Ph.D., 2002, The Syntheses, Structures and Reactivities of Manganese-disulfide Complexes**

27) **Burjor Captain, Ph.D., 2002, Synthesis and Properties of**

High Nuclearity Bimetallic Clusters Containing Ruthenium

28) **Shaobin Miao, Ph.D., 2004, Syntheses, Characterization and Reactivities of New Mixed-Metal Sulfide Complexes**

29) **Jack L. Smith, Jr., Ph.D., 2005, High-Nuclearity Bimetallic Clusters Containing Groups VII - IX Transition Metals: Synthesis, Structure, and Bonding.**

30) **Lei Zhu, Ph.D., 2006, Structures and Properties of New Polynuclear Heterometallic Carbonyl Cluster Complexes Containing Platinum, Palladium, Ruthenium, Osmium and Tin.**

31) **Erin Boswell, Ph.D., 2008, Synthesis, Characteristics, and Properties of New Bimetallic Carbonyl Cluster Complexes.**

32) **Eszter Trufan, Ph.D., 2009, Synthesis and Characterization of New Platinum Group Metal Cluster Complexes containing Tin and Germanium Ligands.**

33) **William C. Pearl, Jr., Ph.D., 2010, Applications of Antimony and Bismuth for Cluster Synthesis and Heterogeneous Catalysis.**

34) **Fang Fang, M. S., 2012, Studies of Iridium Carbonyl Cluster Complexes.**

35) **Mingwei Chen. Ph. D., 2013, New Bimetallic Iridium Carbonyl Cluster Complexes.**

36) **Yuwei Kan, Ph. D., 2013, New Ruthenium and Osmium Carbonyl Cluster Complexes with Main Group Bridging Ligands having Unusual Structures and Bonding.**

37) **Qiang Zhang, Ph. D., 2013, Iridium-Ruthenium/Osmium-Gold Complexes: Unique Structures and Properties.**

38) **Yuen Onn Wong, Ph. D., 2014, Structural Studies and Reaction of Rhenium and Rhenium-Gold Metal Carbonyl Complexes**

39) **Gaya Elpitiya, Ph. D., 2015, Iridium-Bismuth Cluster Complexes: New Directions for Chemistry and Oxidation Catalysis.**

40) **Zhongwen Luo, M. S., 2015, Transformations of the Methyl and Phenyl Ligands in Os3Au and Os_3Hg Carbonyl Complexes**

41) **Joseph Kiprotich, Ph.D. 2017, Coordination Chemistry of Carboranes and Furan Ligands on Transition Metal Cluster Complexes.**

42) **Jonathan D. Tedder, Ph.D., 2018, Studies of the Activation of Carbon-Gold and Carbon-Hydrogen Bonds by the Pentaruthenium Carbonyl Cluster $Ru_5(\mu_5\text{-}C)(CO)_{15}$.**

43) **Poonam Dhull, Ph. D., 2018, Multiple C-H Bond Activations of Aromatic Compounds by Unsaturated Dirhenium Carbonyl Complexes.**

44) **Morteza Maleki, M. Sc., 2019, Studies of CH Activation in Unsaturated Amides and Esters by Trinuclear Metal Carbonyl Clusters of Osmium.**

45) **Humaiara Akter, Ph.D., 2021, Studies of the Chemistry of Pentaruthenium Carbido Carbonyl Cluster Complexes with Aldehydes, Azobenzene and Alkynes.**

46) **Nutan Damodhar Wakdikar, Ph.D., 2021, Alkyne Cyclization involving a Zwitterionic Hexaruthenium Carbido Carbonyl Complex and the Synthesis of the First Nitrido Heterometallic Carbonyl Cluster Complexes.**

47) **Meenal Kaushal, Ph.D., 2022, Small Molecule Activation by Dirhenium Carbonyl Complexes.**

Undergraduates in Research

1) W. Carter Edenfield - 2018
2) Claire Prince - 2018
3) Joseph Parr - 2017
4) Mitchell Smith – 2016
5) Tyler Hernandez - 2015
6) Jonathan Tedder - 2013
7) Candace Broussard - 2011
8) Joseph Bonvallet - 2009
9) Mitul Patel – 2006-7
10) William Colin Baehr – 2006

11) Stacey DeWees - 2001
12) Sherida Johnson – 1998
13) John Schierlmann – 1995
14) Michael S. Alexander – 1990
15) Ann Crespi - 1980
16) Edward C. Weissman - 1979
17) Edward Faraci - 1978

Professional Service Activities

1) Chairman, General Papers Session, 173rd National Meeting of the American Chemical Society, New Orleans, 1977.
2) Member of Organizing Committee, Annual NSF Workshop on Organometallic Chemistry, 1979, 1980, 1981, 1982, and 1983.
3) Chairman and Organizer for Symposium on "Organic Transformations at Polynuclear Metal Centers, Fall National Meeting of the American Chemical Society, New York, NY, 1981.
4) Co-chairman, U.S.-France International Seminar on "The Activation of CO_2 and Related Heteroallenes on Metal Centers", university of Rennes, Rennes, France, 1981.
5) Co-organizer, New England Workshop on Organometallic Chemistry, Mt. Kisco, NY, 1977, 1978, and 1979.
6) Co-chairman of Contributed Papers Session, 10th International Conference on Organometallic Chemistry, Toronto, Canada, 1981.
7) Chairman, Committee to Establish National ACS Award for Organometallic Chemistry, 1982.
8) Chairman and Organizer, Symposium on "The Activation of CO_2 by Metal Atoms", Spring National Meeting of the American Chemical Society, St. Louis, MO, 1984.
9) Program Chairman, Academic and Industrial Development Workshop, SC Section of the ACS, 1985 and 1986.
10) Co-organizer, U.S.-Germany Workshop on the "Chemistry of Heteronuclear Clusters and Multimetallic Catalysts", Konigstein, West Germany, September 7-11, 1987.
11) Discussion Chairman, Symposium of Southeastern Organometallic Chemistry, 41st Southeast Regional Meeting of the ACS, Winston-Salem, NC, Oct. 10, 1989.
12) Chairman, Gordon Conference on Inorganic Chemistry, Wolfeboro, NH, July 29 - August 2, 1991
13) Consultant - Mallinckrodt Medical Inc. 1991 - 1993.
14) Discussion Leader, Gordon Research Conference on Inorganic Chemistry, Wolfeboro, NH, July 22 - July 28, 1995.
15) Organizer and Cochairman, Symposium on Polynuclear Metal Complexes Containing Thiolate and Thioether Ligands, Southeast/Southwest Region Meeting of the ACS, November 29 - Dec. 1, 1995, Memphis, TN
16) Discussion Chairman, Symposium of Southeastern Organometallic Chemistry, 48th Southeast Regional Meeting of the American Chemical Society in Greenville, SC, Nov.

11-13, 1996.

17) **Session Chairman, Symposium on Frontiers in Organometallic Chemistry, 218th National Meeting of the American Chemical Society in New Orleans, LA, August 21-25, 1999.**
18) **Session Chairman, Symposium on Trends in Transition Metal Chemistry: Toward the Third Millennium, Pisa, Italy, February 24 -27, 2000.**
19) **Session Chairman, Symposium on Contemporary Inorganic Chemistry, Texas A & M University, College Station, TX, March 12 – 15, 2000.**
20) **Chairman and Organizer of F. A. Cotton Organometallics Award Symposium, 221st National meeting of the American Chemical Society, San Diego, CA, April 1 - 5, 2001.**
21) **Member of International Scientific Committee, First International Symposium on Bioorganometallic Chemistry, ENSCP, Paris, France, July 18-20, 2002**
22) **Session Chairman, 1st International Symposium on Bioorganometallic Chemistry, Paris, France, July 17-20, 2002.**
23) **Symposia Chairman, Southeast Section of ACS Regional meeting, Charleston, November 13-16, 2002.**
24) **Session Chairman, Symposium of Macrocycles and Supramolecular Chemistry, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.**
25) **Session Chairman, Symposium on Ferrocene Chemistry, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.**
26) **Session Chairman, Symposium on Organometallic Chemistry, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 14-16, 2002.**
27) **Co-Organizer, Symposium on Carbon-Rich Organometallic Compounds, 225th National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003.**
28) **Session Chairman, Symposium on Carbon-Rich Organometallic Compounds, 225th National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003.**
29) **Session Chairman, Symposium on Frontiers in Organometallic Chemistry, 225th National Meeting of the American Chemical Society, New York City, NY, September 7-11, 2003.**
30) **Session Chairman, General papers session on Organometallic Chemistry, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 16-19, 2003.**
31) **Organizer and Session Chairman, Symposium on Bimetallic and Nanoparticle Catalysts, Southeast Regional meeting of the ACS, Charleston, SC, Nov. 16-19, 2003.**

32) Organizer and Session Chairman, Symposium on New Organometallic Complexes for Applications in Homogeneous Catalysis, Pacifichem 2005, Honolulu, HW, December 15 - 20, 2005.
33) Session Chairman, 3rd International Symposium on Bioorganometallic Chemistry, Milan, Italy, July 5-8, 2006.
34) Oranizer, Symposium on Frontiers in Organometallic Chemistry, 234th National Meeting of the American Chemical Society, Boston, MA, August 19-23, 2007.
35) Co-Oranizer, Cotton Memorial Symposium, 235th National Meeting of the American Chemical Society, New Orleans, LA, April 6-10, 2008.
36) Member of the International Advisory Board of the International Symposium of Bioorganometallic Chemistry, 2000-2010.
37) Organizer, Symposium on Frontiers in Organometallic Chemistry, 24th International Symposiium on Organometallic Chemistry, Taipei, Taiwan, July 18-23, 2010.
38) Session Chairman, JOM Symposium on Frontiers in Organometallic Chemistry, Pacifichem 2010, Honolulu, HW, December 15 - 20, 2010.
39) Symposium Organizer and Session Chairman, JOM Symposium on Frontiers in Organometallic Chemistry, 25th International Conference on Organometallic Chemistry, Lisbon, Portugal, September 3 - 7, 2012.
40) Symposium Organizer and Session Chairman, JOM Symposium on "The Coordination Chemistry of Hydrocarbons", 41st International Conference on Coordination Chemistry, Singapore, July 21 - 25, 2014.

Richard D. Adams – Refereed Scientific Publications

1. R. D. Adams, F. A. Cotton, A New Type of Fluxional Molecule. Bis-(μ-dimethylgermyl)dicobalthexacarbonyl, *J. Am. Chem. Soc.*, **1970**, *92*, 5003.

2. R. D. Adams, F. A. Cotton and G. A. Rusholme, Low-Valent Metal Isonitrile Complexes. I. The Structure of Di(methylisonitrile)di(η^5-cyclopentadienyl)dinickel, *J. Coord. Chem.*, **1971,** *1*, 275.

3. R. D. Adams, F. A. Cotton, Low-Valent Metal Isonitrile Complexes. II. Preparation and Characterization of Some Di(alkylisonitrile)di(η^5-cyclopentadienyl)-dinickel Compounds, *Syn. Inorg. and Metal-Org. Chem.*, **1972**, *2*, 277.

4. R. D. Adams, F. A. Cotton, New Evidence for Carbonyl- and Isonitrile-Bridged Transition States for Intramolecular Carbonyl Scrambling, *J. Amer. Chem. Soc.*, **1972,** *94*, 6193.

5. R. D. Adams, F. A. Cotton, Structural and Dynamic Properties of Dicyclopentadienylhexacarbonyldimolybdenum in Various Solvents, *Inorg. Chim. Acta.*, **1973**, *7*, 153.

6. R. D. Adams, M. D. Brice and F. A. Cotton, Intramolecular Ligand Scrambling via Bridged Transition States or Intermediates in Di(pentahaptocyclopentadienyl)(methylisonitrile)(pentacarbonyl)(dimolybdenum), *J. Am. Chem. Soc.*, **1973**, *95*, 6594.

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