

**PROFESSIONAL BIOGRAPHY OF
DR. CHRISTIAN A. CLAUSEN**

Personal:

Present Position: Professor
 Department of Chemistry
 University of Central Florida
 Orlando, Florida 32816
 Phone: 407-823-2246

Education:

High School - 1958, Belle Chasse, Louisiana

B.S. - 1963, Industrial Chemistry, Louisiana State University; Baton Rouge, Louisiana

Ph.D. - 1969, Physical Inorganic Chemistry, University of New Orleans; New Orleans, Louisiana; Dissertation topic: "Mossbauer and Far-Infrared Studies on Distorted Octahedral, Tetrahedral and Pyramidal Configurations in Iron and Tin Complexes."

Professional Employment:

Professor, Department of Chemistry, University of Central Florida (formerly Florida Technological University); 1977 to present. Graduate Program Coordinator 1986 -1990.

Interim Chairperson, Department of Chemistry, University of Central Florida, 1992.

Consultant to Indonesian Government for the purpose of improving the teaching of Chemistry in Indonesian Universities.

Technical Consultant to the following firms: Engineering Technology, Inc., Hazardous Waste Consultants, Inc., Bell Laboratory, Memtec Corporation and Science and Technology Inc.; 1985 to present.

Associate Professor, Department of Chemistry, University of Central Florida; 1972 -1977.

Assistant Professor, Department of Chemistry, University of Central Florida; 1969 -1972.

Research Chemist, Dow Chemical Company; Plaquimine, Louisiana; 6/76 - 9/76.

Visiting Associate Professor, Department of Chemistry, Louisiana State University; New Orleans, Louisiana; 6/75 - 9/75.

Visiting Associate Professor, Department of Chemistry, Louisiana State University; New Orleans, Louisiana; 6/74 - 9/74.

Visiting Scientist, Dupont Chemical Company; 6/72 - 9/72.

Visiting Assistant Professor, Department of Chemistry, Louisiana State University; New Orleans, Louisiana; 6/70 - 9/70.

Graduate Teaching Assistant, Department of Chemistry, Louisiana State University; New Orleans, Louisiana; 9/66 - 9/69.

Research Chemist, Standard Oil Company; California; 1/63 - 9/66.

Fields of Interest:

Spectroscopy and structure determination of complexes, particularly Mossbauer and FTIR spectroscopy; coordination chemistry; the study and development of new supported metal catalyst systems; the development of new industrial processes; the study of new commercial product formulations; studies of the relationship between basic research and its application to the solution of industrial problems; the application of chemical instrumentation to the solution of problems in forensic science and aerosol systems, hazardous waste minimization and treatment methodologies.

Awards:

1. Dow Chemical Company Scholarship (1959 - 1963)
2. Outstanding Chemistry Undergraduate Student (1960,61,62)
3. National Science Foundation predoctoral trainee (1966 -1969).
4. Research Society of America Award for "Excellence in Research" (1970).
5. Atomic Energy Commission - Research Fellowship (1972).
6. Orlando Jaycees Award as Outstanding Young Educator for 1973.
7. Outstanding Educators of American, 1974 - 1975 Edition.
8. Selected for the American Chemical Society Tour Speaker Award (1974 - 75).
9. First UCF Foundation Award for Excellence in Teaching (1975).
10. Selected to the UCF "The Quill" (1983).
11. One of the first of two UCF faculty members selected to Phi Kappa Phi (1984).
12. U.S. Army Chemical Research, Development and Engineering Center's Distinguished Service Award (1990).
13. Outstanding Researcher Award, College of Arts and Sciences, UCF (1992).
14. Distinguished Researcher Award, University of Central Florida, (1992).
15. Governor's Award for Outstanding Employee at UCF (1992).
16. Outstanding Teacher Award, College of Arts and Sciences, UCF (1996)

17. TIP Award UCF (1997)
18. NASA Group Achievement (1999)
19. TIP Award UCF (2001)
20. NASA Gold Quality Dollar Award (2001)
21. "The 2001 Excellence in Environmental Engineering Research Award", by the AAEE presented at the National Press Club in Washington D.C.
22. The 2003 "Florida Medalist Award", the highest award that the Florida Academy of Science gives
23. The 2003 NASA "Gold Dollar Award".
24. The Space Alliance Technology Outreach Award "Award of Excellence, 2005."
25. The FLC Southeast Region "Excellence in Technology Transfer Award, 2005."

Membership and Offices Held in Professional and Honorary Societies:

1. American Chemical Society
 - a) Secretary for the Florida Section (1972 - 1976)
 - b) Councilor for the Florida Section (1976 - 1986)
 - c) Membership Committee Chairman for the Florida Section (1972 - 1976)
 - d) Chairman of the Florida Congressional Science Councilor Program (1976 - 1982)
 - e) Congressional Science Advisor (1976 - 1990)
 - f) Member of the Florida Executive Committee (1972 - 1986)
 - g) ACS Tour Speaker (1974 - 1982)
 - h) Chairman of ACS Task Force on Academic Preparation and Industrial Careers in Chemistry (1979 - 1984)
 - i) Sub-committee Chairman ACS Task Force on Cross Fertilization of Chemistry and Chemical Engineering (1982 - 1986)
 - j) Member ACS Academic-Industrial Chemistry Advisement Board (1985-1988)
2. Member and past chairman of the Psi Chapter of Alpha Chi Sigma (1961)
3. Phi Lambda Upsilon (Men's Chemistry Honorary) (1962 - present)
4. Phi Kappa Phi (1984-present), Treasurer (1985-1987), Secretary (1992 - 1999)

Sponsored Research - External Funding:

1. "Application of Appropriate Solvents for use in nano-and micro-particle emulsions for remediation of materials contaminated with chlorinated compounds and/or heavy metals," C. Geiger, P.I., C. Clausen Co-PI, sponsored by US EPA-NCER. Began on April 2005 to April 2006 for \$17,500.
2. "The Synthesis of Nanoscale Size Aerosol Infrared Screening Materials." C. Clausen P.I., sponsored by Engineering Technology. Began on June 2005 to June

2006 for \$25,652.

3. “The Removal of Heavy Metals from Contaminated Soils and Sediments by the Use of Iron Particle Emulsions.” C. Gieger, P.I., C. Clausen Co-P.I., sponsored by NASA. Began on April 1, 2003 to March 31, 2004 for \$17,500.
4. “Rapid Dechlorination of Polychlorinated Biphenyls in Sediments and Soils by Pd/Fe Bimetallic Emulsions,” C. Gieger, P.I., C. Clausen Co-P.I., sponsored by NASA. Began on April 1, 2003 to March 31, 2004 for \$17,500.
5. “Production of Advanced Infrared Screening Materials.” C. Clausen P.I., C. Geiger Co-P.I., sponsored by Engineering Technology Inc. Began on March 1, 2003 to February 28, 2004 for \$32,000.
6. “Rapid Dechlorination of Polychlorinated BiPhenyls in Paints by Bimetallic Emulsions – Phase I”. C. Geiger P.I., C. Clausen Co-P.I., sponsored by NASA. Began on April 1, 2003 to May 31, 2004 for \$30,000.
7. “Heavy Metal Remediation Through the use of Emulsified Zero-Valent Iron, Field Test”. C. Clausen P.I., C. Geiger Co-P.I., sponsored by NASA. Began on January 1, 2004 to December 31, 2004 for \$32,500.
8. “In Site Reductive Dehalogenation of DNAPLs by the Use of Emulsified Zero-Valent Nanoscale Iron Particles – Phase II.” C. Geiger, P.I., C. Clausen and D. Reinhart Co-PI. Funded by, GEOSYNTEC Consultants under the NASA STTR program, \$67,000, Began September 2001 to December 2002.
9. “In Site Reductive Dehalogenation of DNAPLs by the Use of Emulsified Zero-Valent Nanoscale Iron Particles–Phase II.” C. Geiger, P.I., C. Clausen and D. Reinhart Co-P.I.’s. Funded by GEOSYNTEC Consultants under the NASA STTR program. Began May 2002 to December for a total of \$25,000.
10. “A Study to Evaluate the Aging Characteristics of a Permeable Iron reactive Barrier”. D. Reinhart P.I., C. Clausen and C. Geiger Co-P.I.’s. Funded by NASA-KSC, began August 2001 to April 2002 for a total of \$50,000.
11. “Field Demonstration of Ultrasound Enhancement of Permeable Treatment Walls”, D. Rinehart P.I., C. Geiger and C. Clausen, Co-P.I.’s, sponsored by Gulf Coast Hazardous Substance Research Center. Began May 1, 2002 to October 2002 for \$18,695.
12. “Reductive Emulsions for Remediation of Groundwater Contaminated with Halogenated Hydrocarbons.” C. Geiger and C. Clausen Co-PI’s, sponsored by NASA for \$15,000, began May 1, 2002 to December 31, 2002.
13. “Rapid Dechlorinated of Dedychlorinated Biphenyls in Soils by Pd/Fe Bimetallic

- Emulsions.” C. Geiger, C. Clausen and D. Reinhart Co-PI’s. Funded by NASA for \$15,000. Began May 1, 2002 to January 31, 2003.
14. “Field Demonstration of Ultrasound Enhancement of Permeable Treatment Walls Phase II,” C.A. Clausen as P.I., Cherie L. Geiger and Debra Reinhart as Co-P.I.s, sponsored by Gulf Coast Hazardous Substance Research Center. Begun January 2001 to December 2001 for a total of \$43,000.
 15. “The Use of Microwaves to Activate Hydrogen Peroxide in the Reduction of NO_x Emissions from Stationary Sources,” C. Cooper P.I. and C. Clausen CO-P.I., funded by Tiberian Corp. Begun June 2000 to August 2001 for a total of \$35,000.
 16. “The Transfer of NO_x Emission Reduction Technology,” funded by The Gulf Coast Hazardous Substance Research Center with C. Cooper P.I. and C. Clausen CO-P.I.. Begun January 2001 to December 2001 for a total of \$33,000.
 17. “NASA NO_x – IV: Pilot Scale Evaluation of New Technology for NO_x Control,” Dr. C. Cooper P.I. and C. Clausen as CO-P.I., funded by NASA-KSC. Begun August 2000 to August 2001 for a total of \$48,000.
 18. “A Study to Evaluate the Aging Characteristics of a Permeable Iron Reactive Barrier,” D. Reinhart as P.I., C. Clausen and C. Geiger as CO-P.I.’s, funded by NASA-KSC. Begun June 2001 to July 2002 for a total of \$50,000.
 19. “In Situ Reductive Dehalogenation of DNAPLS by the Use of Emulsified Zero-Valent Nanoscale Iron Particles – Phase II,” with C. Clausen as P.I., C. Geiger and D. Reinhart as CO-P.I.’s. Funded by GEOSYNTEC Consultants under the NASA STTR Program. Begun May 2001 and to April 2002 for \$93,568.
 20. "NASA NO_x -3: Pilot Scale Evaluation of New Technology for NO_x Control," Dr. C. Cooper as P.I. from Civil and Environmental Engineering and C.A. Clausen as CO-P.I., funded by NASA-KSC. Begun March 2000 to October 2001 for a total of \$45,000.
 21. "In-Situ Reductive Dehalogenation of DNAPL's by the Use of Emulsified Zero-Valent Nanoscale Iron Particles." C.A. Clausen as P.I., Cherie L. Geiger and Debra Reinhart as Co-P.I.s, sponsored by GEOSYNTEC Consultants under the NASA STTR program. Begun May 1999 to December 2000 for a total of \$58,695.
 22. "The Development of Environmentally Compatible Gaseous Infrared Screening and Filter Mixtures," Christian Clausen as P.I., Cherie L. Geiger as Co-P.I., sponsored by I-4 High Tech and Engineering Technologies, Inc., begun June 2000 to June 2001 for a total of \$50,000.
 23. "Feasibility Study of a +100 Additive Removal Cartridge for Aircraft Defueling

- Operations," C.A. Clausen as P.I., Cherie L. Geiger as Co-P.I., sponsored by Engineering Technologies, Inc. Begun September 1999 to September 2000 for a total of \$80,000.
24. "Advanced Materials Studies-II," C.A. Clausen as P.I., Cherie L. Geiger as Co-P.I., sponsored by Engineering Technologies, Inc. Begun September 1999 to September 2000 for a total of \$17,124.
 25. "Field Demonstration of Ultrasound Enhancement of Permeable Treatment Walls," Debra Reinhart as P.I., Christian Clausen and Cherie L. Geiger as Co-P.I.s, sponsored by Gulf Coast Hazardous Substance Research Center. Begun September 1999 to September 2000 for a total of \$123,184.
 26. "Field Demonstration of Ultrasound Enhancement," Debra Reinhart and P.I., Christian Clausen and Cherie Geiger as Co-P.I.s; sponsored by National Aeronautics and Space Administration. Begun July 1999 to December 2000 for a total of \$50,000.
 27. "Advanced Materials Studies," C.A. Clausen, P.I., Funded by Engineering Technology. Began on January 1, 1999 to September 1, 1999 for a total of \$57,969.
 28. "A Pilot-Scale Evaluation of a New Technology to Control NO_x Emissions from Stationary Combustion Sources-Phase III," C.D. Cooper, P.I. and C.A. Clausen, Co-P.I., funded by NASA-KSC. Begun November 1, 1998 to December 30, 1999 for \$139,997. This new grant brings the total cumulative award on this project to \$437,222.
 29. "Field Demonstration of Ultrasound Enhancement of Permeable Treatment Walls," Debra Reinhart, P.I. and C.A. Clausen, Co-P.I., funded by Gulf Coast Hazardous Substance Research Center. Begun September 1, 1999 to August 31, 2000 for \$123,184.
 30. "A Field Demonstration of Ultrasound Enhancement of Permeable Treatment Walls," Debra Reinhart, P.I. and C.A. Clausen, Co-P.I., funded by NASA. To begin September 1, 1999 to August 31, 2000 for \$50,000.
 31. "The Development of an Electrochemical Technique for the In Situ Remediation of Soils Contaminated With Heavy Metals - Phase II." C. Geiger, P.I., with C. Clausen and D. Reinhart as Co-P.I.'s, funded by NASA-KSC. June 1, 1998 to June 1, 1999, for \$151,137.
 32. "Permeable Reactive Wall Field-Scale Application – Phase IV," Debra Reinhart as P.I. from Civil and Environmental Engineering and C.A. Clausen and M. Chopra as Co. P.I.'s, funded by NASA-KSC. Begun 1997 to January 1999 for a total of \$412,203.

33. "The Development of Methodologies for Using Water to Replace CFC-113 in NVR Validation Tests on Large-Scale Spacecraft Hardware," C.A. Clausen, P.I., funded by NASA-KSC. Begun September 1, 1997 to December 31, 1998 for a total of \$45,000.
34. "Phase II – the Development of Test Procedures for Determining the Concentration of Additives in JP-8 Jet Fuel," C.A. Clausen, P.I. and M. Hampton, Co-P.I., funded by Pratt and Whitney. Begun August 1, 1997 to March 31, 1998 for a total of \$19,354.
35. "The Development of an Electrochemical Technique for the In Situ Remediation of Soils Contaminated With Heavy Metals – Phase I" C. Geiger, P.I., with D. Reinhart and C. Clausen as Co-P.I.'s, funded by NASA-KSC. Begun June 1, 1997 to June 1, 1999 for a total of \$150,000.
36. "The Design and Construction of a Solvent Purity Meter for Use With Hydrofluoroether Solvents in NVR Test Procedures," C.A. Clausen, P.I., funded by EG&G of Florida, Inc. Begun June 1, 1997 to December 31, 1997 for a total of \$41,950.
37. "A Pilot-Scale Evaluation of a New Technology to Control NO_x Emissions at Kennedy Space Center – Phase II," C.D. Cooper, P.I., and C.A. Clausen, Co-P.I., funded by NASA-KSC. Begun June 1, 1997 to June 1, 1998 for a total of \$150,588.
38. "Enhancement of In-Situ Zero-Valent Metal Treatment of Contaminated Groundwater-Phase II," C.A. Clausen and Co-P.I. Debra Reinhart of the Department of Civil and Environmental Engineering funded by NASA-KSC. Begun on July 1, 1996 to June 18, 1998 for a total of \$79,811.
39. "A Pilot Scale Evaluation of a New Technology to Control NO_x Emissions at Kennedy Space Center," C.D. Cooper, P.I., of Department of Civil and Environmental Engineering funded by NASA-KSC. Begun on May 1, 1996 to May 1, 1997 for \$146,637.
40. "The Development of Test Procedures for Determining the Concentration of Oxidative Stability Additives in JP-8 Jet Fuel," C.A. Clausen P.I and Mike Hampton Co-P.I. funded by Pratt and Whitney. Begun on June 1, 1996 to December 31, 1996 for a total of \$15,599.
41. "The Development of a Photoacoustic Method for Detecting Land Mines and Shallowly Buried Ordnance by the Use of their Chemical Signatures," C.A. Clausen. Funded by UCF's Office of Research and Graduate Studies Programs in College and Center/Institute Research Initiatives Program for \$25,312, May 1, 1997 to August

20, 1997.

42. " Pilot-Scale Evaluation of a New Technology to control NO_x Emissions From Stationary Source," C.D. Cooper and C.A. Clausen, NASA/KSC. Begun on 6/1/96 with a completion date of 6/1/97 for a total funded value of \$146,637.
43. "Enhancement of In-Situ Zero Valent Metal Treatment of Contaminated Groundwater-Phase II," C.A. Clausen and D. Reinhart, NASA/KSC. Begun on 6/1/96 with a completion date of 6/1/97 for a total funded value of \$79,811.
44. "The Development of Methodologies and solvent systems to Replace CFC-113 in the Cleaning and Validation of Spacecraft Hardware," C.A. Clausen, NASA-KSC. Begun on 6/10/95 to 6/10/96 for a total of \$49,957.
45. "Investigation of Carbon Filaments from Hydrocarbon Feedstocks," C.A. Clausen, Battelle Corporation. Begun on 10/20/95 to 10/20/96 for a total of \$62,656.
46. "The Development of an Acoustical Particle Counter," C.A. Clausen, U.S. Army. Begun on June 1, 1995 and completed December 31, 1995 for \$11,923.
47. "The Generation of Catalytic Carbon Filaments," C.A. Clausen, The Battelle Corporation/DOD. Begun on 10/01/95 with a completion date of 10/01/96 for a total funded value of \$50,000.
48. "Enhancement of In-Situ Zero Valent Metal Treatment of Contaminated Groundwater," C.A. Clausen with D. Reinhart, NASA/KSC. Begun on 6/1/95 with a completion date of 6/1/96 for a total funded value of \$87,299.
49. "The Development of an Acoustical Particle Counter," C.A. Clausen, DOD/Army/APG. Begun on 5/1/95 with a completion date of 11/1/95 for a total funded value of \$11,923.
50. "The Development of Methodologies and Solvent Systems to Replace CFC-113," C.A. Clausen, NASA/KSC. Begun on 6/1/95 with a completion date of 6/1/96 for a total funded value of \$49,957.
51. "A Photoacoustic Spectroscopic Method to Detect NVR," C. A. Clausen, Lockheed Space Operations Co. Begun on 4/01/94 with a completion date of 12/30/94 for a total funded value of \$50,000.
52. "Conducting Polymer Filaments - II," C. A. Clausen, Engineering Technology Inc. - DOD. Begun on 8/01/94 with a completion date of 8/01/95 for a total funded value of \$18,517.
53. "Innovative methods for Removal of Residual Carbon Monoxide and Nitric Oxide in Exhaust Gases from Hazardous Waste Incinerators - II," C. A. Clausen and C. David

- Cooper, Gulf Coast Hazardous Substances Research Center. Begun on 5/01/94 with a completion date of 4/30/95 for a total funded value of \$82,506.
54. "NASA - Freon Free Validation Testing," C. A. Clausen, NASA. Begun on 2/30/94 with a completion date of 12/30/94 for a total funded value of \$40,000.
 55. "Innovative Methods for the Destruction of Residual Carbon Monoxide and Nitric Oxide in Exhaust Gases from Hazardous Waste Incinerators," C. A. Clausen and C. David Cooper. Gulf Coast Hazardous Substance Research Center. Begun on 5/01/93 completed 4/30/94 for a total funded value of \$81,371.
 56. "The Development of a Photoacoustic Spectroscopic Method to Detect Leaks in Refrigeration Systems," C. A. Clausen and K. Beck. From S & H Engineering Corp. Begun on 3/01/93 completed 9/30/93 for a total funded value of \$85,549.
 57. "Conducting Polymer Filaments," C. A. Clausen. From Engineering Technology Inc. Begun on 9/01/93 completed 8/30/94 for a total funded value of \$17,120.
 58. "Catalytic Production of Carbon Filaments," C. A. Clausen. From Engineering Technology Inc. Begun on 9/01/93 completed 8/30/94 for a total funded value of \$16,120.
 59. "NASA - Waster Rinse to Determine the State of Cleanliness of a Surface - Phase IV," C. A. Clausen. From NASA - KSC. Begun on 2/01/93 completed 9/30/93 for a total funded value of \$82,791.
 60. "Hollow Carbon Fiber Studies - Phase III," C. A. Clausen, The Battelle Corporation. Begun on 2/01/92 completed 12/31/92 for a total funded value of \$30,000.
 61. "Enhancement of the Kinetics of Incineration of Dilute Hazardous Organic Vapors - Phase III," C. A. Clausen and C. David Cooper, Gulf Coast Hazardous Substance Research Center. Begun on 6/01/91 completed 5/01/92 for a total funded value of \$69,184.
 62. "NASA - Water Rinse to Replace Freon Validation Test," C. A. Clausen, NASA. Begun on 10/01/91 completed 3/01/92 for a total funded value of \$25,000.
 63. "Enhancement of the Kinetics of Incineration of Dilute Hazardous Organic Vapors, - Phase II," C. A. Clausen and C. David Cooper, Gulf Coast Hazardous Substance Research Center. Begun on 6/01/90 and completed on 6/01/91 for a total funded value of \$65,000.
 64. "Waste Minimization - The Reduction of Photographic Hazardous Waste," C. A. Clausen, Martin-Marietta. Begun on 6/01/90 and completed on 12/31/90 for a total funded value of \$75,000.

65. "Hollow Carbon Fiber Studies - Phase II," C. A. Clausen, The Battelle Corporation. Begun on 1/31/91 and completed on 12/01/91 for a total funded value of \$31,947.
66. "NASA - Waste Rinse to Determine the State of Cleanliness of a Surface," C. A. Clausen, NASA. Begun on 2/01/91 and completed on 9/01/91 for a total funded value of \$25,185.
67. "Graphite Filament Packaging," C. A. Clausen, Engineering Technology. Begun on 3/18/91 and completed on 12/31/91 for a total funded value of \$2,500.
68. "Conductive Polymer Project," Engineering Technology. Begun on 3/18/91 and completed on 12/31/91 for a total funded value of \$7,000.
69. "Hollow Carbon Fiber Studies," C.A. Clausen, The Battelle Corporation. Begun 2/01/90 and completed on 12/31/90 for a total budget of \$33,773.
70. "Filament Research," C. A. Clausen, Engineering Technology, Inc. Begun on 5/01/89 and completed on 12/31/89 for a total budget of \$9,000.
71. "Waste Minimization-The Replacement of Halogenated Hydrocarbons in Solvent Based Cleaning Operations and the Treatment of Spent Inorganic Oxidizing Solutions," (1989) funded by Martin Marietta, \$60,841.
72. "The In-Place Immobilization of Metal ions in Soil and Ash," (1989) funded by The Center for Environmental Toxicology, \$35,000.
73. "Enhancement of the Kinetics of Incineration of Dilute Hazardous Organic Vapors," (1989) funded by Gulf Coast Hazardous Substance Research Center, \$64,930.
74. "Microparticulate Studies," (1988) funded by Engineering Technology Inc., \$13,000.
75. "Aerosol Evaporation Studies," (1988) funded by U.S. Army for \$12,063.
76. "Aerosol Evaporation Studies," (1987) funded by U.S. Army for \$22,812.
77. "Aerosol Evaporation Studies," (1986) funded by U.S. Army for \$10,470.
78. "Infrared Obscuration Studies-Phase III," (1986) funded by U.S. Army for \$1400.
79. "Infrared Obscuration Studies-Phase II," (1985) funded by U.S. Army for \$1,000.
80. "Aerosol Evaporation Studies," (1985) funded by U.S. Army for \$4,000.
81. "Infrared Obscuration Studies," (1984) funded by U.S. Army for \$3,000.

82. "The Development of a Methodology Base for Identifying Tire Skid and Scuff Marks," (1983) funded by Florida STAR for \$10,000.
83. "Self Paced Instruction for General Chemistry Lab Assignments," (1981), funded by QIP; \$625.
84. "Identification of Accelerants in Fire Atmospheres," (1980) funded by the Florida STAR program; \$24,009.
85. "The Use of Phosphate Rock Slimes in the Ternary Treatment of Sewage," (1979) funded by the W.R. Grace Corporation; \$2,000.
86. "Early Detection and Entrapment of Accelerants in Fire Atmospheres," (1979) funded by the Florida STAR program; \$22,000.
87. "Piperylene Separation," (1979) funded by Dow Chemical Company; \$9,585.
88. "Development of a Laboratory Course in Principles of Industrial Chemistry," (1979) funded by the National Science Foundation; \$20,358.
89. "Mossbauer Spectroscopic Studies of Homogeneous Catalysts Coordinately Bound to Polymer Supports," (1975) funded by Research Corporation; \$5,000.
90. "Selected Iron and Ruthenium Mossbauer Studies - A Study of Supported Ruthenium Catalysts - Part II," (1975) funded by National Science Foundation - College Research Participation Program; \$6,335.
91. "Cooperative Research in Graduate Education," (Summer, 1976) funded by Dow Chemical Company; \$10,000.
92. "A Project to Develop Instructional Materials for a Course in Industrial Chemistry," (1973) funded by National Science Foundation; \$17,260.
93. "Selected Iron and Ruthenium Mossbauer Studies - A study of Supported Ruthenium Catalysts - Part I," (1974) National Science Foundation College Research Participation Program; \$5,305.
94. "Summer Research Participation Program," (1973) funded by the Atomic Energy Commission; \$4,500.
95. Travel Grant to AEC Savannah River Laboratories, (1973) funded by the Atomic Energy Commission; \$250.
96. Atomic Energy Commission Grant, (1970); \$10,000.

Sponsored Research - Internal Funding:

1. "Overhead Projection Chemical Demonstrations," (1988), an Instructional Development Grant from UCF Instructional Resources, \$350.
2. "Instructional Development Grant in Chemistry," (1984) UCF Learning Council" \$1500.
3. "The Development of a Methodology Base for Identifying Tire Skid and Scuff Marks by Fourier Transform Interferometry," (1982) funded by Division of Sponsored Research; \$6,000.
4. "The Development of a Process for Recovering Platinum from Spent Automotive Emission Control Catalytic Converters - Phase II," (1979) funded by Division of Sponsored Research; \$750.
5. "The Development of a Process for Recovering Platinum from Spent Automotive Emission Control Catalytic Converters - Phase I," (1978) funded by Division of Sponsored Research; \$1700.
6. "A project to Establish the Toxic Chemical Exposure Levels in Laboratories and Work Areas at F.T.U.," (1978) funded by Division of Sponsored Research Business Affairs; \$1090.
7. "The Development of a Homogeneous Catalytic System for Producing Methanol from Carbon Oxides and Hydrogen Mixtures Under Low Pressure and Temperature Conditions," (1977) funded by Division of Sponsored Research; \$1700.

Textbooks Published:

1. *Chemistry Fundamentals Laboratory Experiments*, C. A. Clausen; December 1974; Omni-Print, Inc.: Sarasota, Florida; 70 pages.
2. *Case Studies in Industrial Chemistry*, C. A. Clausen and G. C. Mattson; January 1975; American Chemical Society; Washington, D. C.; 385 pages.
3. *Principles of Industrial Chemistry*, C. A. Clausen and G. C. Mattson; December 1978; John Wiley and Sons: New York; 412 pages.
4. *Fundamentos De Quimica Industrial*, C. A. Clausen and G. C. Mattson; May 1982; Editorial Limus, S. A.; 445 pages.
5. *Complete Solutions for General Chemistry and General Chemistry with Qualitative Analysis, Ninth Edition*, J. H. Meiser, C. A. Clausen, F. K. Ault, D. C. Heath and Co., Lexington, MA, 816 pages (1991).

6. *Test Item File for General Chemistry and General Chemistry with Qualitative Analysis, Ninth Edition*, C.A. Clausen, D. C. Heath and Co., Lexington, MA, 1024 pages (1991).
7. *Test Item File for Chemistry - Concepts and Models*, C. A. Clausen, D. C. Heath and Co., Lexington, MA, 353 pages (1992).
8. *Test Item File for General Chemistry with Qualitative Analysis - Essentials of General Chemistry* with S.L. Bretz, R.L. Bretz and C.A. Clausen, Houghton Mifflin Co., New York, N.Y. (1997) 474 pages.

Scientific Publications:

1. Clausen, C. A.; Good, M. L.; "Effects of Cations on the Mossbauer Spectra of Tetrahaloferrate Anions," in *Mossbauer Methodology*; Gruverman, I., Ed.; Plenum Press: New York, 1968; Vol. 4, Pages 187.
2. Clausen, C. A.; Good, M. L.; "Stabilization of the Hexachloroferrate (III) Anion by the Methylammonium Cation," *Inorg. Chem.* 1968, 7, 2662.
3. Clausen, C. A.; Prados, R. A.; Good, M. L.; "Mossbauer Effect Parameters in Ruthenium Compounds," *Chem. Comm.* 1969, 1188.
4. Clausen, C. A.; Good, M. L.; "Mossbauer and Far Infrared Studies of Inorg. Chem.," 1970, 9, 220.
5. Clausen, C. A.; Good, M. L.; "An Interpretation of the Mossbauer Spectra of Mixed Hexahalo complexes of Tin (IV)," *Inorg. Chem.* 1970, 9, 817.
6. Clausen, C. A.; Prados, R. A.; Good, M. L.; "Chemical Applications of the Mossbauer Effect in Ruthenium Compounds," in *Mossbauer Methodology*; Gruverman, I., Ed.; Plenum Press: New York, 1970; Vol. 7, pp 31.
7. Clausen, C. A.; Prados, R. A.; Good, M. L.; "A Mossbauer Study of the Bonding in Ruthenium (II) Compounds," *J. Am. Chem. Soc.* 1970, 92, 7482.
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92. Kristen Milum, Cherie L. Geiger, Christian A. Clausen, Jacqueline Quinn "*In Situ* Heavy Metal Contaminant Removal Using Emulsified Iron". Remediation of Chlorinated and Recalcitrant Compounds 2004, Battelle Press, ISBN#1-57477-132-9. May 2004.
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94. Suzanne O'Hara, Thomas Krug, Jacqueline Quinn, Cherie L. Geiger, Christina C. Coon, Christian A. Clausen. "Performance Evaluation of Dehalogenation of

DNAPLs Using Emulsified Zero-Valent Iron.” Remediation of Chlorinated and Recalcitrant Compounds May 2004, Monterey, CA.

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97. C. Clausen, C. D. Cooper, and M. M. Collins. “Hydrogen Peroxide Enhanced Removal of NOx from Flue Gases.” NASA Tech Briefs, p54, January 2005.

Patents

1. "Emplacement Technique for In-Situ Treatment of Groundwater Using Reactive Material." Awarded with U.S. Patent#6,207,114 on March 27, 2001. Inventors are: Quinn, J., C. Geiger, N. Ruiz, D. Reinhart, and C. Clausen
2. "Enhancement of Zero-Valent Metal Treatment of Contaminated Groundwater by the Use of Ultrasound." Awarded with U.S. Patent #6,013,232 in 2000. Inventors are: Quinn, J., C. Geiger, N. Ruiz, D. Reinhart, and C. Clausen
3. “Zero-Valent Metal Emulsion for Reductive Dehalogenation of DNAPLS. U.S. Patent No.6, 664, 298 B1, issued Dec. 16 2003. Inventors are: Reinhart, D., C. Clausen, and C. Geiger.
4. “Method fro Removal of Nitrogen Oxides from Stationary Combustion Sources.” U.S. Patent No.6,676,912 B1, issued Jan. 13, 2004. Inventors are: Cooper, C., C. Clausen, and M. Collins.
5. “An Injection Nozzle for Hydrogen Peroxide with Ultraviolet Activation." Inventors are: Clausen, C. A., and Cooper, D. W., Submitted and Pending.

Speaker and/or Chairman of Technical Programs and Symposiums:

1. Invited speaker at the 4th annual Mossbauer Symposium (sponsored by New England Nuclear Corporation in Chicago, Illinois in January 1968).
2. Invited speaker for the 6th Annual Mossbauer Symposium, January 25, 1970, in Chicago, Illinois.
3. Inorganic Session Chairman, Meeting-in Miniature of the Florida Section of the

American Chemical Society, May 1971, Gainesville, Florida.

4. Invited panel member, The Florida College Conference on Chemistry Articulation, University of Florida, 1971.
5. Invited speaker for the Atomic Energy Commission's Savannah River Laboratory, on "Chemical Applications of Mossbauer Spectroscopy," Aiken, South Carolina, 1972.
6. Speaker at the Florida Academy of Sciences Meeting on "The Mossbauer Spectra of ^{237}Np in Ion-Exchange Resins and Solvent Extractants," March 1974, Orlando, Florida.
7. Speaker and Session Chairman, the Florida American Chemical Society Meeting-in-Miniature, "Mossbauer Studies of Supported Ruthenium Catalyst Systems," May 1975, Orlando, Florida.
8. Invited Speaker at the 10th Mossbauer Symposium, "The Application of Mossbauer Spectroscopy to Studies of Supported Ruthenium Catalyst Systems," February 1976, New York.
9. Invited Speaker, American Chemical Society Symposium on Advances in Characterization of Metal and Polymer Surfaces, New York Centennial Meeting, April 1976.
10. Invited Program Chairman of the Chemical Dynamics Division of the Southeast Regional American Chemical Society Meeting, November 1977, Tampa, Florida.
11. Invited Chairman of the Plenary Session of the Florida Section American Chemical Society's Meeting-in-Miniature, May 1978, Gainesville, Florida.
12. Invited speaker on "Teaching Principles of Industrial Chemistry," at the National American Chemical Society Meeting; Washington, D.C., September 1979.
13. Chairman of the Industrial Chemistry Division - joint Southeastern/Southwest American Chemical Society Symposium, New Orleans, Louisiana, 1980.
14. Invited paper on "Early Detection and Entrapment of Accelerants in Fire Atmospheres," American Academy of Forensic Sciences, 33rd Annual Meeting, February 1981, Los Angeles, California.
15. Organized and chaired a one and one-half day symposium on "Academic Preparation and Industrial Careers in Chemistry," Las Vegas, April 1982.
16. Invited paper on "The Interfacing of Local and National Employment Clearing Houses," Florida American Chemical Society Section, May 1983, Jacksonville,

Florida.

17. Invited paper on "Work Experience-Its Value and Methodologies for Incorporation into the Chemical Curriculum," at the National American Chemical Society Meeting, Miami Beach FL, May 1, 1985.
18. Invited paper on "Oxidation Methods in Retarding Diesel Fuel Evaporation," Workshop I on Fog Oil Substitution Problems, University of Florida, Gainesville FL, October 22-23, 1985.
19. Invited paper "On the Use of Carbon Particles in Retarding Diesel Fuel Evaporation," Workshop II on Fog Oil Substitution Problems, Chemical Research and Development Center, U. S. Army, Edgewood Arsenal, January 21-22, 1986.
20. Presented a paper on "Experiences on Teaching Industrial Chemistry to Undergraduate Students," Symposium on Introducing Industrial Chemistry into the Undergraduate Curriculum, Middle Atlantic Regional Meeting, Baltimore MD, September 3, 1986.
21. L. B. Ebert, J. C. Scanlon and C. A. Clausen "X-ray Diffraction of Carbonaceous Materials," at the 18th Biennial Conference on Carbon, Worcester, MA, July 19-24, 1987.
22. Organized and chaired a symposium on "Industrial Chemistry in Universities," 194th ACS National Meeting, New Orleans, Louisiana, September 1, 1987.
23. C. A. Clausen, "Materials and Methodologies That Have Been Used to Introduce the Industrial into Academic Chemistry," a Symposium on Industrial Chemistry in Universities, 194th ACS National Meeting, New Orleans, La., September 2, 1987.
24. L. B. Ebert, J. C. Scanlon, C. A. Clausen, "Combustion Tube Soot from a Diesel Fuel/Air Mixture," a Symposium on Advances in Soot Formation Chemistry, 194th ACS National Meeting, New Orleans, La. September 2, 1987.
25. Presented a paper on "Generation and Study of Soot Aerosols from Diesel Fuel-Air in Mixtures," 39th ACS Southeast Regional Meeting, Orlando FL, November 4, 1987.
26. Organized and chaired a symposium on "Hazardous Waste Disposal," 39th ACS Southeast Regional Meeting, Orlando FL, November 5, 1987.
27. C. A. Clausen, "Hazardous Waste - the Chemistry and the Law," a Symposium on Hazardous Waste Disposal, 39th Southeast Regional ACS Meeting, Orlando, FL. November 3-6, 1987.
28. L. B. Ebert, J. C. Scanlon, and C. A. Clausen, "Combustion Tube Soot from a

- Diesel/Air Mixture," 39th Southeast Regional ACS Meeting, Orlando, FL. November 3-6, 1987.
29. C. A. Clausen, S. Movassaghi, J. Slattery, P. W. Morgan, R. Leonard, "Generation and Study of Soot Aerosols from Diesel/Air Mixtures." 39th Southeast Regional ACS Meeting, Orlando, FL. November 3-6, 1987.
 30. C. A. Clausen and C. David Cooper, "Enhancement of the Kinetics of Incineration of Dilute Hazardous Organic Vapors," The Gulf Coast Hazardous Substance Research Center Symposium, Beaumont, TX, February 22, 1989.
 31. C. A. Clausen, J. C. Dimmette and P. W. Morgan, "A Comparison of JP-8 Aerosols to Diesel Fuel and Fog Oil Aerosols," Smoke/Obscurants Symposium XIII, Johns Hopkins University, Laurel, Maryland, April 25, 1989.
 32. C. A. Clausen and C. David Cooper, "Catalytic Incineration of Dilute Hazardous Organic Vapors," The Gulf Coast Hazardous Substance Research Center Symposium on Solidification/Stabilization: Mechanisms and Applications, February 15, 1990, Beaumont, TX.
 33. Presented an invited paper on "The Effect of Fuel Additives on Automobile Exhaust Emissions," Danish Technical Institute, Copenhagen, Denmark, February 7, 1991.
 34. C. A. Clausen and C. David Cooper, "Catalytic Incineration of Dilute Hazardous Organic Vapors," The Gulf Coast Hazardous Substance Research Center Symposium on Solidification/Stabilization: Mechanisms and Applications, February 1991. Beaumont, TX.
 35. C. A. Clausen, P. W. Morgan, T. Racine, G. Herman, "The Evaluation of Conductive Polymer Filaments For Use As An Obscurant," Smoke/Obscurants Symposium XV, April 1991, The Johns Hopkins University, Maryland.
 36. C. A. Clausen, T. Racine, G. Herman, "The Formation of Filamentous Carbon From Hydrocarbon Feedstocks," Smoke/Obscurants Symposium XV, April 1991, The Johns Hopkins University, Maryland.
 37. C. A. Clausen and P. W. Morgan, "The Packaging and Dissemination of Precut Graphite Filaments," Smoke/Obscurants Symposium XV, April 1991," The Johns Hopkins University, Maryland.
 38. C.A. Clausen and J. Batten, "Using Fluorescence Spectroscopy to Detect the Presence of Non-Volatile in Water Wash Samples," CFC Replacement Workshop, Kennedy Space Center, July 1991.
 39. Presented an invited paper on "The Use of Catalysts to Reduce Hazardous Air

Pollutants," August 5, 1991, Brisbane, Australia.

40. C.A. Clausen, J. Batten, G.J. Allen, C.W. Bassett, W.L. Dearing and C.W. Hopesch, "Methods for Using Water in Lieu of Chlorofluorocarbon 113 for Determining the Non-Volatile Residue Level on Precision Cleaned hardware," CFC Replacement Conference, Baltimore, Maryland, November 1991.
41. C.A. Clausen, C. David Cooper, "Catalytic Incineration of Dilute Hazardous Organic Vapors," The Gulf Coast Hazardous Substance Research Center Symposium on Treatment of Hazardous Waste, April 1992, Beaumont, TX.
42. C. Geiger, A. Martinez, C. David Cooper, C.A. Clausen, "Enhancement of Organic Vapor Incineration Using Hydrogen Peroxide," 1992 Annual Meeting of Chemical Society Florida Section, April 1992, Cocoa Beach, FL.
43. J. Batten, K. Czaplinski, F. Haddock, C.A. Clausen, W.L. Dearing, C.W. Hopesch, J.F. Jenes, M.J. Loulorgan, P.J. Welch, M.D. Buckley and M.K. Williams, "Methods for Using Water in Lieu of Chlorofluorocarbon-113 for Determining the Non-Volatile Residue Level on Precision Cleaned Hardware," 1992 Annual Meeting of American Chemical Society Florida Section, April 1992, Cocoa Beach, FL.
44. C.A. Clausen, L. Jenkins, G. Mattson, P.W. Morgan, T. Resetar-Racine and G. Hermann, "The Use of Conductive Polymers to Produce Environmentally Friendly Multispectral Screening Materials," Smoke/Obscurants Symposium XVI, April 1992, The Johns Hopkins University, Maryland.
45. C.A. Clausen, L. Jenkins, G. Mattson, P.W. Morgan, T. Resetar-Racine and G. Hermann, "The Institute Generation of Multispectral Screening Materials from JP-8," Smoke/Obscurants Symposium XVI, April 1992, The Johns Hopkins University.
46. C.A. Clausen, "The Generation of Black Smoke from Hydrocarbons Feedstocks," 1992 Scientific Conference on Obscuration and Aerosol Research, Aberdeen Proving Ground, Maryland, July, 1992.
47. C.A. Clausen, J. Batten and J. Wild, "Aqueous Non-Volatile Residue Validation," CFC Replacement Workshop, Kennedy Space Center, September 1992.
48. C.A. Clausen, C. Geiger, A. Martinez, and C.D. Cooper, "Catalytic Incineration of Dilute Hazardous Organic Vapors," The Gulf Coast Hazardous Waste Symposium on Emerging Technologies, February 1993, Beaumont, TX.
49. C.A. Clausen, X.Y. Duan, P.W. Morgan, L. Jenkins and T. Resetar-Racine, "Synthesis and Properties of Potential Multispectral Screening Materials," Smoke/Obscurants Symposium XVII, April 1993, Johns Hopkins University, Maryland.

50. C.D. Cooper and C.A. Clausen, "Innovative Methods for Removal of Residual Carbon Monoxide and NO_x in Exhaust Gases from Hazardous Waste Incinerators," Annual SAC/IAC meeting, Beaumont, Texas, January 10, 1995.
51. C.A. Clausen, C.D. Cooper, C.L. Geiger and J. Kasper, "Enhanced Incineration Using Hydrogen Peroxide or Ozone - Effectiveness on VOC's and NO_x," Symposium on Priorities in Pollution Prevention, March 2-4, 1994, Beaumont, Texas.
52. P.S. Morgan and C.A. Clausen, "Development of a Multispectral Obscurant Mixture for Explosive Ordinance Disposal Applications," Smoke/Obscurants Symposium XVIII, August 25, 1994, Eglin Air Force Base, Florida.
53. C.A. Clausen, P. Morgan, K. Voss and T.R. Racine, "Development of Conductive Polymer Fiber Materials for Application as a Degradable Millimeter Wave Screening Agent," Smoke/Obscurants Symposium XVII, August 25, 1994, Eglin Air Force Base, Florida.
54. C.A. Clausen, X.Y. Duan, P.W. Morgan, K. Voss and T.R. Racien, "Synthesis and Properties of Millimeter Wave Screening Materials from JP-8 Fuel." Smoke/Obscurants Symposium XVIII, August 25, 1994, Eglin Air Force Base, Florida.
55. C.A. Clausen, C. Geiger and C.D. Cooper, "Innovative Methods for Removal of Residual Carbon Monoxide and NO_x in Exhaust Gases from Hazardous Waste incinerators," Annual SAC/IAC Meeting, Beaumont, Texas, January 11, 1994.
56. C.L. Geiger, C.A. Clausen, C.D. Cooper and A. Martinez, "H₂O₂ Enhanced Thermal Oxidation of n-Heptane and Chlorobenzene," 1995 Meeting of the American Chemical Society, Anaheim, California, March 1995.
57. P.S. Fowler, J.L. Guidry and C.A. Clausen, "Photoacoustic Detection of Airborne Contaminants," 1995 Meeting Florida Section American Chemical Society, Orlando, FL, May 1995.
58. N. Rakshit, J.M. Kasper, C.D. Cooper, and C.A. Clausen, "Enhanced Oxidation and Removal of Nitrogen Oxides from Flue Gases by Using Hydrogen Peroxide," 1995 Meeting Florida Section American Chemical Society, Orlando, FL, May 1995.
59. C.L. Geiger, C.A. Clausen and C.D. Cooper, "Products of Incomplete Combustion from HgO₂ Enhanced Thermal Oxidation of Heptane and Chlorobenzene," 1995 Meeting Florida Section American Chemical Society, Orlando, FL, May 1995.
60. G.F. Afioni, K.R. Voss and C.A. Clausen, "The Use of Conductive Polymers to Produce Environmentally Friendly Multispectral Screening Materials," 1995

Meeting Florida Section American Chemical Society, Orlando, FL, May 1995.

61. X.Y. Duan, D. Bratescu and C.A. Clausen, "The Synthesis and Properties of Carbon Filaments Produced by a Catalytic Vapor Phase Process," 1995 Meeting Florida Section American Chemical Society, Orlando, FL, May 1995.
62. C. Geiger, C.Clausen, A. Martinez and C.D. Cooper, "Using Hydrogen Peroxide to Enhance the Thermal Destruction of Dilute Volatile Organic Compounds," Presented at the 88th Annual Meeting of the Air and Waste Management Association, San Antonio, Texas, June 18-23 (1995).
63. C.A. Clausen, J.M. Kasper, C.D. Cooper, and N. Rakshit, "Hydrogen Peroxide Enhanced Oxidation and Removal of Nitrogen Oxides from Flue Gases," Presented at the ACS Emerging Technologies in Hazardous Waste Management VII Symposium, in Atlanta, Georgia, September 17-20 (1995).
64. C. L. Geiger, A. Martinez, C.A. Clausen, and C.D. Cooper, "Enhanced Oxidation of Volatile Organic compounds from Flue Gases Using Hydrogen Peroxide." Presented at the ACS Emerging Technologies in Hazardous Waste Management VII Symposium, in Atlanta, Georgia, September 17-20 (1995).
65. C.A. Clausen, "Criteria for Surfactant Selection 'ZONYL.'" Presented at the Aqueous Precision, Cleaning and Verification Workshop, John F. Kennedy Space Center, October 1995.
66. C.A. Clausen, "Environmental Catalysts," Presented at the 211th American Chemical Society National Meeting, New Orleans, LA. March 24-26, 1996.
67. C.L. Geiger, D. Reinhart, C.A. Clausen, N. Ruiz and G. Afioni, "Remediation of Solvent-Contaminated Groundwater Using Enhanced Zero-Valent Metal Technology." Presented at the 211th American Chemical Society National Meeting, New Orleans, LA. March 24-26, 1996.
68. C.A. Clausen, "Using Conductive Polymer Coated Filaments as a Multispectral Screening Agent." Presented at the Fifth Annual U.S. Army-British Army Symposium on Obscuration, Baltimore, MD. March 28, 1996.
69. C.A. Clausen, "The Synthesis of Conductive Filaments from JP-8." Presented at the Fifth Annual U.S. Army-British Army Symposium on Obscuration, Baltimore, MD. March 28, 1996.
70. C.A. Clausen, D. Bratescu, P.W. Morgan and T. Resetar-Racine, "New Catalyst Systems for the Synthesis of Millimeter Wave Screening Materials from JP-8 Fuel." Presented at Smoke/Obscurants Symposium XIX, Johns Hopkins University, Laurel, MD. June 26, 1996.

71. C.A. Clausen, K.R. Voss, P.W. Morgan and T. Resetar-Racine, "Conductive Polymer Fibers - A Degradable Millimeter Wave Obscurant." Presented at Smoke/Obscurants Symposium XIX, Johns Hopkins University, Laurel, MD, June 26, 1996.
72. G.F. Afiouni, C.A. Clausen, C.L. Geiger, D. Reinhart, N.E. Ruiz, "The Use of Zero-Valent Iron and Ultrasonic Energy for In-Situ Groundwater Remediation." Presented at the 212th American Chemical Society National Meeting, Orlando, FL, August 25-29, 1996.
73. J. Guidry, C.A. Clausen and G. Allen, "The Development of a Freon-Free Nonvolatile Residue Test for Space Flight Hardware." Presented at the 212th American Chemical Society National Meeting, Orlando, FL, August 25-29, 1996.
74. G.F. Afiouni, C.A. Clausen and K. Voss, "An Environmentally Friendly Multispectral Screening Material Produced from Conductive Polymers." Presented at the 212th American Chemical Society National Meeting, Orlando, FL, August 25-29, 1996.
75. D.T. Bratescu and C.A. Clausen, "New Catalyst Systems for the Vapor Phase Synthesis of Carbon Filaments." Presented at the 212th American Chemical Society National Meeting, Orlando, FL, August 25-29, 1996.
76. Geiger, C.L., C.A. Clausen, G. Afiouni, D. Reinhart, N. Ruiz, "The Use of Ultrasonic Energy for In-Situ Groundwater Remediation," 212th American Chemical Society National meeting, Orlando, Florida, August 25, 1996.
77. C.A. Clausen, D. Bratescu, P.W. Morgan, and T. Resetar-Racine, "New Catalyst Systems for the Synthesis of Millimeter Wave Screening Materials From JP-8 Fuel," Smoke Obscurants Symposium XIX, Johns Hopkins University, Laurel, Maryland, June 25, 1996.
78. C.A. Clausen, K.R. Voss, P.W. Morgan, and T. Resetar-Racine, "Conductive Polymer Fibers: A Degradable millimeter Wave Obscurant," Smoke Obscurants Symposium XIX, Johns Hopkins University, Laurel, Maryland, June 26, 1996.
79. J. Guidry, C.A. Clausen and G. Allen, "The Development of a Freon-Free Nonvolatile Residue Test for Space Flight Hardware," The 212th American Chemical Society National Meeting, Orlando, Florida, August 24, 1996.
80. G. Afiouni, K. Voss and C. Clausen, "An Environmentally Friendly Multispectral Screening Material Produced From Conductive Polymers," The 212th American Chemical Society National meeting, Orlando, Florida, August 27, 1996.
81. D.T. Bratescu, C.A. Clausen, "New Catalyst Systems for the Vapor-Phase synthesis of Carbon Filaments," The 212th American Chemical Society National Meeting,

Orlando, Florida, August 26, 1996.

82. Reinhart, D.R., C. Clausen, C. Geiger, N. Ruiz, G. Afiouni, "Enhancement of In-Situ Zero-Valent Metal Treatment of Groundwater," ASCE NAPL Assessment and Remediation, Washington, D.C., November 11, 1996.
83. Geiger, C. L., C. Clausen, N. Ruiz, P. Toy, D. Reinhart, "Reductive Dehalogenation of Trichloroethylene Using Zero-Valent Iron and Ultrasonic Energy," 61st Annual Meeting Florida Academy of Sciences, Punta Gorda, Florida, March 15, 1997.
84. Christian Clausen, Cherie L. Geiger, Debra R. Reinhart, Nancy Ruiz, Kristi Farrell, Patrick Toy, Nancy Lau Chan, Mark Cannata, Stephen Burwinkle. "Ultrasonic Regeneration of Permeable Treatment Walls: Laboratory / Studies. Battelle 2nd Annual Remediation of Chlorinated and Recalcitrant Compounds," Monterey CA, May 22-25, 2000.
85. C.A. Clausen, L. Tazi, L. Petty, M. Collins, C.D. Cooper, and J. Dietz, "A Pilot-Scale Evaluation of Hydrogen Peroxide Injection to Control NO_x Emission from Combustion Sources," presented at the National AIChE Meeting, March 9, 2000, Atlanta, GA.
86. L. Petty, M. Collins, C.D. Cooper, and C.A. Clausen, "Oxidation and Removal of Nitrogen Oxides from Flue Gases Using Hydrogen Peroxide." Florida Academy of Sciences 64th Annual Meeting, Melbourne, FL, March 9-11, 2000.
87. C. Hartmann and C.A. Clausen, "Advanced Infrared Screening and Filter Materials." Florida Academy of Sciences 64th Annual Meeting, Melbourne, FL., March 9-11, 2000.
88. Hala Sfeir, A. Randall, D. Reinhart, M. Chopra, C. Clausen, C. Geiger. "Biotic Attenuation and Zero-Valent Iron Permeable Barrier Technology. The Battelle 2nd Annual Remediation of Chlorinated and Recalcitrant Compounds, Monterey CA, May 22-25, 2000.
89. Cherie L. Geiger, Christian Clausen, Debra R. Reinhart, Nancy Ruiz, Patrick Toy, Nancy Lau Chan, and Jacqueline Quinn, "Laboratory and Field Studies on the Use of Ultrasound to Enhance or Restore Dechlorination Rates of Permeable Treatment Walls Containing Iron." American Institute of Chemical Engineers International Conference, Atlanta, GA, March 5-9, 2000.
90. Debra Reinhart, Manoj Chopra, Christian Clausen, Cherie Geiger, and Jacqueline Quinn, "NASA Permeable Reactive Barriers Action Team Meeting, Melbourne, FL., February 16-17, 2000.
91. J. Kesselring, V.N. Prasad, C. L. Geiger, C.A. Clausen, D. Reinhart, "The Use of Electrokinetic Remediation for In-Situ Remediation of Soils Contaminated with

Lead." Florida Academy of Sciences 64th Annual Meeting, Melbourne, FL., March 9-11, 2000.

92. K.B. Brooks, C.A. Clausen, C. L. Geiger, D. Hurly, D. R. Reinhart. "Dehalogenation of Chlorinated DNAPL Pools In-Situ Using Emulsified Nanoscale Iron Particles." Florida Academy of Sciences 64th Annual Meeting, Melbourne, FL, March 9-11, 2000.
93. C. L. Geiger, C.A. Clausen, D. R. Reinhart, N. Ruiz, K. Farrell, N. Lau, J. Quinn, "Sonication as a Technique for Restoring the Efficiency of Reactive Iron in Meeting, Melbourne, FL., March 9-11, 2000.
94. Cherie L. Geiger, Christian A. Clausen, Debra R. Reinhart, Vanessa Prasad, Lucas Petty, Emmanuel Ofori, and Jacqueline Quinn, "Electrokinetics as a Remediation Technology for Soils contaminated with Heavy Metals and the Variables Involved in the Process." NSAS 2nd Annual Partners in Education Conference, Melbourne, FL., October 6-7, 1999.
95. C.A. Clausen, M. Collins, C.D. Cooper, L. Petty, and J. Dietz, "New Control Technology for NO_x Emissions from Stationary Combustion Sources," NASA 2nd Annual Partners in Education Conference, Melbourne FL., October 6-7, 1999.
96. Cherie L. Geiger, Christian A. Clausen, Debra R. Reinhart, Vanessa Prasad, Lucas Petty, Emmanuel Ofori, and Jacqueline Quinn, "Variables Involved in the Electrokinetic Remediation of Soils Contaminated with Lead." Florida Air and Waste Management Association Annual Conference, Orlando, FL, September 21-22, 1999.
97. Kristi Farrell, Debra Reinhart, Christian Clausen, Cherie Geiger and Jacqueline Quinn, "Field Testing of Ultrasound for Rejuvenation of Permeable Treatment Walls." Florida Air and Waste Management Association annual Conference, Orlando, FL., September 21-22, 1999.
98. Cherie L. Geiger, Christian A. Clausen, Debra R. Reinhart, Vanessa Prasad, Lucas Petty, Emmanuel Ofori, and Jacqueline Quinn, "Variables Involved in the Electrokinetic Remediation of Soils contaminated with Heavy Metals." Environmental Division Poster Session, American Chemical Society Fall National Conference, New Orleans, August 22-26, 1999.
99. Cherie L. Geiger, Christian a. Clausen, Debra R. Reinhart, Vanessa Prasad, Lucas Petty, Emmanuel Ofori, and Jacqueline Quinn, "Variables Involved in the Electrokinetic Remediation of Soils Contaminated with Heavy Metals." SCI-MIX Poster Session, American Chemical Society Fall National Conference, New Orleans, August 22-26, 1999.

100. C. A. Clausen, C. L. Geiger, P. Toy, D. R. Reinhart, M. Cannata, M. Chopra, and J. Quinn, "Use of Ultrasound in a Saturated Soil/Iron Matrix to Remediate Contaminated Groundwater." Ultrasound Industry Association 29th Annual Symposium, Baltimore, MD., June 7-8, 1999.
101. Kristi Farrell, C. L. Geiger, C.A. Clausen, D. R. Reinhart, J. Quinn, "Field Application of a Permeable Treatment Wall: A Preliminary Study of Early Data." The Florida Section of the American Chemical Society Annual Meeting, May 11-13, 1999.
102. C. L. Geiger, C.A. Clausen, D. R. Reinhart, P. Toy, N. Ruiz, N. Chan, J. Quinn, "Trichloroethylene Sorption at a Zero-Valent Iron Surface." The Florida Section of the American Chemical Society Annual Meeting, May 11-13, 1999.
103. Vanessa N. Prasad, C. L. Geiger, C.A. Clausen, D. Reinhart, Cindi Nandall, "Comparing the Importance of Variables Involved in the Electrokinetic remediation of Soils Contaminated with Heavy Metals." The Florida Section of the American Cancer Society Annual Meeting, May 11-13, 2000.
104. M. Ofori and C. A. Clausen, "New Environmentally Acceptable Millimeter Wave Screening Materials." Florida Academy of Sciences 64th Annual Meeting, Melbourne, FL., March 9-11, 2000.
105. C. D. Cooper, M. Collins, C. A. Clausen, L. Petty, and J. Dietz, "Controlling NO_x Emissions from Stationary Combustion Sources by the Use of Hydrogen Peroxide," Florida Air and Waste Management Association Annual Conference, Orlando, FL., September 21-22, 1999.
106. Christian A. Clausen, Cherie L. Geiger, Debra R. Reinhart, Nancy Ruiz, Kristi Farrell, Patrick Toy, Nancy Lau Chan, Mark Cannata, Stephen Burwinkle. "Ultrasonic Regeneration of Permeable Treatment Walls: Laboratory/Field Studies." Proceedings of the Battelle 2nd Annual Remediation of Chlorinated and Recalcitrant Compounds, Monterey CA, May 22-25, 2000.
107. Hala Sfeir, A. Randall, D. Reinhart, M. Chopra, C. Clausen, C. Geiger. "Biotic Attenuation and Zero-Valent Iron Permeable Barrier Technology. The Battelle 2nd Annual Remediation of Chlorinated and Recalcitrant Compounds, Monterey CA, May 22-25, 2000.
108. Cherie L. Geiger, Christian A. Clausen, Emmanuel Ofori, Teresa Restar-Recine, Jeff Hale. "The Synthesis and Characterization of New, Inexpensive, Environmentally-Safe MMW Screening Materials". Proceedings of the Scientific Conference on Obscuration and Aerosol Research, 2000. June 27-29, 2000. Aberdeen Proving Ground, Maryland. Refereed International.

109. Cherie L. Geiger, Christian A. Clausen, Kathleen Brooks, David Major. "Nanoscale and Microscale Iron Emulsions for Treating DNAPL". The Spring National ACS Meeting, San Diego CA, April 1-5, 2001.
110. Cherie L. Geiger, Christian A. Clausen, Debra Reinhart, Aamod Sanowone, Nancy Ruiz. "Using Ultrasound for Restoring Iron Activity in Permeable Treatment Walls". The Spring National ACS Meeting, San Diego CA, April 1-5, 2001.
111. T. Berrios, C.L. Geiger, C.A. Clausen, K. Brooks, C.L. Clausen. "Synthesis of an Environmentally Acceptable Iron Emulsion For TCE Degradation". The Florida Academy of Sciences 65th Annual Meeting, March 2001.
112. C.L. Geiger, C.A. Clausen, D.R. Reinhart, C.L. Clausen, K. Brooks. "Using Ultrasound to Increase the Reactivity of Iron in Permeable Treatment Walls". The Florida Academy of Sciences 65th Annual Meeting, March 2001.
113. C.A. Clausen, C.L. Geiger, K. Brooks, R. DeVor. "Using Iron Emulsions to Remediate DNAPL". The Florida Academy of Sciences 65th Annual Meeting, March 2001.
114. L. Petty, P. Muller, C. Clausen and C. Cooper. "Microwave Activation of Hydrogen Peroxide for the Removal of NO_x Species from Flue Gas Systems". The Florida Academy of Sciences 65th Annual Meeting, March 2001.
115. P. Muller, L. Petty, C. Clausen and C. Cooper. "Removal of NO_x Gases from Flue Gas Streams by the Use of Ultraviolet – Activated Peroxide Radicals". The Florida Academy of Sciences 65th Annual Meeting, March 2001.
116. Brooks, K., C.L. Geiger, C.A. Clausen, "DNAPL Remediation Using Emulsified Iron Particles." The Florida American Chemical Society Meeting, May 2001.
117. Clausen, C.L., C.L. Geiger, C.A. Clausen, D.R. Reinhart, "Demonstrated Effects of Ultrasound to Regenerate Permeable Reactive Iron Barriers." The Florida American Chemical Society Annual Meeting, May 2001.
118. Geiger, C.L., Clausen, C.A., Brooks, K. Huntley, C., Clausen, C.L., Filipek, L., "DNAPL Remediation Using Microscale and Nanoscale Iron Emulsions." The 53rd ACS Southeast Regional Meeting, Savannah, GA., September 2001.
119. Clausen, C.A. and Geiger, C.L. "The Development of New IR Obscuration Materials from Nanowires." Presented at the U.S. Army's Workshop on nanomaterials Washington, D.C., March 2002.

120. Stewart, N., Clausen, C.A., Geiger, C.L., Clausen, C.M., "Dehalogenation studies of Different Types and Forms of Zero-Valent Iron." Presented at the 223 National ACS Meeting in the SCIMIX Session, Orlando, FL., April 2002.
121. Clausen, C.M., Filipek, L., Geiger, C.L., Clausen, C.A., "Kinetic Studies of Nanoscale and Microscale Zero-Valent Iron Emulsions." Presented at the 223 National ACS Meeting in the SCIMIX session, Orlando, FL., April 2002.
122. Huntley, C., Devor, R., Clausen, C.A., Geiger, C.L., "Physical Properties of Nanoscale and Microscale Zero-Valent Iron Emulsions. Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
123. Stewart, N., Clausen, C.A., Geiger, C.L., Clausen, C.M., "Dehalogenation studies of Different Types and Forms of Zero-Valent Iron." Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
124. Clausen, C.M., Filipek, L., Geiger, C.L., Clausen, C.A., "Kinetic Studies of Nanoscale and Microscale Zero-Valent Iron Emulsions." Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
125. Burrows, S., R. Farley, J. Karph, T. McGovern, C.L. Geiger. Re-creating an effective ACS Student Affiliates Chapter. Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
126. Berrios, T., C.L. Geiger, C.A. Clausen, K. Brooks, C.L. Clausen "Environmentally Acceptable Iron Emulsion for TCE Degradation." The Florida American Chemical Society Annual Meeting Orlando, Fl., May 2001.
127. Stewart, N., C.L. Geiger, C.A. Clausen, K. Brooks. "Kinetics of TCE Degradation Using Iron from Several Different Sources and Under a Variety of Conditions." The Florida American Chemical Society Annual Meeting, Orlando, FL., May 2001.
128. Clausen, C.L., C.L. Geiger, C.A. Clausen, D.R. Reinhart, "Demonstrated Effects of Ultrasound to Regenerate Permeable Reactive Iron Barriers." The Florida American Chemical Society Annual Meeting, May 2001.
129. Geiger, C.L., Clausen, C.A., Brooks, K. Huntley, C., Clausen, C.L., Filipek, L., "DNAPL Remediation Using Microscale and Nanoscale Iron Emulsions." The 53rd ACS Southeast Regional Meeting, Savannah, GA., September 2001.
130. Clausen, C.A. and Geiger, C.L. "The Development of New IR Obscuration Materials from Nanowires." Presented at the U.S. Army's Workshop on nanomaterials Washington, D.C., March 2002.

131. Clausen, C.A., Cooper, C.D., Collins, M., Pettey, L., "Pilot – Scale Evaluation of Ultraviolet Light – Enhanced H₂O₂ Oxidation of NO_x Emissions." Presented at the 223 National ACS Meeting in the Catalysis Division, Orlando, FL., April 2002.
132. Stewart, N., Clausen, C.A., Geiger, C.L., Clausen, C.M., "Dehalogenation studies of Different Types and Forms of Zero-Valent Iron." Presented at the 223 National ACS Meeting in the SCIMIX Session, Orlando, FL., April 2002.
133. Clausen, C.M., Filipek, L., Geiger, C.L., Clausen, C.A., "Kinetic Studies of Nanoscale and Microscale Zero-Valent Iron Emulsions." Presented at the 223 National ACS Meeting in the SCIMIX session, Orlando, FL., April 2002.
134. Huntley, C., Devor, R., Clausen, C.A., Geiger, C.L., "Physical Properties of Nanoscale and Microscale Zero-Valent Iron Emulsions. Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
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136. Clausen, C.M., Filipek, L., Geiger, C.L., Clausen, C.A., "Kinetic Studies of Nanoscale and Microscale Zero-Valent Iron Emulsions." Presented at the 223 National ACS Meeting in the Environmental Chemistry Session, Orlando, FL., April 2002.
137. "From Industry to Academia and Their Ultimate Merger." The Florida Academy of Sciences Florida Medalist Presentation at the 68th Annual Conference held in Orlando, FL, March 2004.
138. "Optimization Of Emulsified Zero-Valent Iron Particles For Reduction Of DNAPL" Cherie L. Geiger, Christina C. Coon, Christian A. Clausen, Kathleen Brooks, and Christian Huntley, Jacqueline Quinn, Suzanne O'Hara, Thomas Krug and David Major. Remediation of Chlorinated and Recalcitrant Compounds May 2004, Monterey, CA.
139. "*In Situ* Heavy Metal Contaminant Removal Using Emulsified Iron," Kristen Milum, Cherie L. Geiger, Christian A. Clausen, Jacqueline Quinn. Remediation of Chlorinated and Recalcitrant Compounds May 2004, Monterey, CA.
140. "Performance Evaluation of Dehalogenation of DNAPLs Using Emulsified Zero-Valent Iron For Four Different Injection Techniques," Jacqueline Quinn,

Suzanne O'Hara, Tom Krug, Cherie Geiger, Chris Clausen. Remediation of Chlorinated and Recalcitrant Compounds May 2004, Monterey, CA.

141. "Evaluating The Distribution Of Emulsified Zero-Valent Iron For Four Different Injection Techniques," Jacqueline Quinn, Suzanne O'Hara, Tom Krug, Cherie Geiger, Chris Clausen. Remediation of Chlorinated and Recalcitrant Compounds May 2004, Monterey, CA.
142. "Removal of heavy Metals Contaminants Using Emulsified Nano-Scale Iron Particles." Kristen Milum, Cherie L. Geiger, Christian A. Clausen, Jacqueline Quinn. Remediation of Soils and Sediments, February 2005, New Orleans, LA.
143. "The Use of Nano-scale Iron Particles for Removal of Heavy Metals from Soils and Sediments." Kristen Milum, Cherie L. Geiger, Christian A. Clausen, Jacqueline Quinn. American Chemical Society National Meeting, Anaheim, CA. March 2005.
144. "Dechlorination of PCBs in solution with Pd/Mg bimetallic systems." B. R. Halle, K. M. Carvalho-Knighton, C. L. Geiger, C. A. Clausen. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.
145. "Stability of Emulsions for TNT Remediation." C. King, K. M. Carvalho-Knighton, C. L. Geiger, C. A. Clausen. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.
146. "Biological Effects of Emulsions on Lemna Minor." L. Talalaj, R. Feuillebois, K. M. Carvalho-Knighton, C. L. Geiger, C. A. Clausen. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.
147. "Variables Involved in Mechanical Alloying of Bimetals for Remediation of Polychlorinated Biphenyls." Brian Aitken, C. L. Geiger, C. A. Clausen, K. M. Milum, J. Quinn, K. Brooks. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.
148. "In Situ Remediation of Heavy Metals Using Emulsified Nano- or Micro- scale Metal Particles." K. M. Milum, C. L. Geiger, C. A. Clausen, Brian Aitken, R. Devor, J. Quinn. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.
149. "Current Air Pollution Issues Associated with Use of Fossil Fuels in the Power Industry." C. A. Clausen. 2005. Florida Academy of Sciences 69th Annual Meeting. Tampa, FL.

Master Degree Students Supervised:

1. Tim Owen, (1976) "Vapor Phase Oxidation of Chloropropenes Over Heterogeneous Catalyst Systems."
2. Mike Myers, (1977) "A Study of Catalyst Systems in Vapor Phase Fluorination Reactions Using Aqueous Hydrofluoric Acid."
3. Mohammed Akbarnejad, (1978) "The Development of a Catalyst System for Producing Hydrocarbons from CO₂ and H₂ at Low Temperatures and Pressures."
4. James Finckbone, (1978) "Development of a Process for Recovering Noble Metals from Spent Automotive Catalytic Converter."
5. Steven Schwinn, (1978) "Development of a Process for Separating Piperylene from a C₅ Petroleum Fraction."
6. Duane Covino, (1979) "Development of a Process for Converting Carbonates into Hydrocarbons."
7. Samuel Maller, (1979) "The Separation of Diolefins from Olefins by a Selective Chemisorption Process."
8. Larry Everson, (1980) "The Evaluation of a New Chromate Containing Water Treatment Additive."
9. Mary Jane Curnutte, (1980) "Separation of Piperylene from a C₅ Petroleum Fraction by Extractive Distillation."
10. Donald Allred, (1982) "Separation of Piperylene Concentrate Via Metathesis Catalysis."
11. Dale Johnson, (1984) "Modeling of Laboratory Scale Batch Distillation with a Desktop Computer."
12. Kathy McIntyre, (1985) "Synergetic Effects in Bimetallic Hydrogenation Catalysts."
13. Soodabeh Karimi, (1985) "A Laboratory Study of Infrared Obscuration by Black Smoke."
14. Sebastian Vasquez, (1985) "The Preparation and Use of Polymeric Metal Complexes as Fuel Oil Combustion Catalysts."
15. Diane Northcott, (1988) "I. Evaluation of Iron Whiskers and Stainless Steel Microwires as Catalysts for Ammonia Synthesis, II. Hydrodechlorination of

Chloroalkanes on Iron Whisker Catalysts."

16. Jean Kula, (1989), "Chemical Fixation and Immobilization of Heavy Metals in Municipal Incinerator Ash."
17. Bruce Lerner, (1990), "Catalytic Reduction of Model Hazardous Waste."
18. Doug Tomlin, (1990), "The Enhancement of the Incineration of Model Volatile Organic Solvents by the Use of Hydrogen Peroxide as a Novel Oxidative Homogeneous Catalyst."
19. Jennifer Batten, (1992), "An Aqueous Method of CFC-113 Replacement for Hardware Cleanliness Verification."
20. Michael Murray, (1992), "Heterogeneous Oxidative Catalysis of Dichlorodifluoromethane."
21. Philip Behm, (1992), "Optimization of the Crystallization of Ferrous Sulfate Heptahydrate."
22. Scott Davidson, (1993), "Nutrient Dynamics in a Reflooded Hydrologically Altered Wetland."
23. Xiao Ying Duan (1994), "The Catalytic Production of Carbon Filaments from Mixed Hydrocarbon Feedstocks."
24. Patrick Fowler (1995), "The Development of Rapid Analysis Methods for the Quantification of NVR's in Low Volatile Solvents."
25. Thad Bowes (1995), "The Treatment and Detoxification of Ammonium Bifluoride Waste."
26. Ghassan Afioni (1995), "The Synthesis of Conductive Polymer Filaments."
27. Daniela Bratescu (1996), "New Catalyst Systems For the Vapor Phase Synthesis of Carbon Filaments."
28. Lu Wang (1997), "The Development of Nickel Filament Catalysts for the Liquid Phase Hydrogenation of Olefins."
29. Patrick Toy, (1997), "The Use of Zero-Valent Metals and Ultrasound to Destroy TCE in Contaminated Groundwater."
30. Brian Cocolicchio (1998), "The Development of a Vapor Phase Hydrogenation Process Using Nickel Microwire Catalysts."
31. Loubna Tazi (1998), "Pilot Scale Study for Control of Industrial Boiler Nitrogen

Oxides Emissions Using Hydrogen Peroxide Treatment Coupled with Wet Scrubbing - Chemical Analysis."

32. Kathleen Brooks (2000), "In-Situ Reduction Dehalogenation of DNAPLs by the Use of Emulsified Zero-Valent Nanoscale Iron Particles".
33. Lucas Petty (2000), "The Use of UV-Activated Hydrogen Peroxide to Reduce NOx Emission from Stationary Sources".
34. Yi Xiong (2001), "The Synthesis and Characterization of Environmentally Degradable Millimeter Wave Screening Materials".
35. Catherine Hartmann (2001), "The Development of Gas Phase Infrared Filters".
36. Ray Marcano (2001), "Selectivity Mechanism for Silicon Oxide Polishing vs Silicon Nitride in Chemical Mechanical Polishing".

Doctoral Students Supervised:

1. Cherie Geiger, (1994), "The Enhancement of the Thermal Destruction of Chlorobenzene and Heptane Using Hydrogen Peroxide."
2. Mike Murray, (2002), "A Closed Loop Method for Copper Plating and Dissolution".

Consulting Activities:

During the past seven years I have served as a consultant in the following areas:

1. Expert chemical analyst witness in criminal court cases more than 20 testimonies in such areas as arson, D.W.I., and traffic accidents.
2. Expert chemical analyst witness in civil court cases - more than 25 testimonies in such areas as explosions, fire, poisons, consumer products, traffic accidents, product liability, etc.
3. Product formulations (e.g., cosmetics, paints, cleaners, adhesives, etc).
4. Catalyst development (e.g., improved combustion efficiency with petroleum fractions).
5. Fuel additive formulations.
6. Lubricant additive formulations.
7. Cellulose insulation manufacture and testing.
8. Consumer fire and flame tests.

9. Forensic method development.
10. Environmental pollution and chemical waste disposal problems.
11. Aerosol Chemistry.