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EDUCATION

Ph.D. in Chemical Engineering, Purdue University, 1997.
Bachelor of Chemical Engineering, University of Delaware, 1993.

PROFESSIONAL EXPERIENCE

CHAIR, Department of Chemical Engineering, University of South Carolina (02/25 – Present)
UNDERGRADUATE PROGRAM DIRECTOR, Dept. of Chemical Engineering, U. of South Carolina (08/15 – 1/2025)
ASSOCIATE EDITOR, *Catalysis Science and Technology* (01/16-12/24)
PCOSS FELLOW, State Key Laboratory for Physical Chem. of Solid Surfaces, Xiamen U., China (11/13- May 2014)
"SEASKY" VISITING PROFESSOR, School of Chemical Engineering., Dalian Univ. of Tech., China (01/09-01/15)
PROFESSOR, Department of Chemical Engineering, University of South Carolina (08/10 – Present)
ASSOCIATE PROFESSOR, Department of Chemical Engineering, University of South Carolina (08/05 – 07/10)
VISITING PROFESSOR, Department of Chemistry and CNRS, University of Poitiers, France (04/07 – 06/07)
VISITING PROFESSOR, Department of Chemical Engineering, University of Osaka, Japan (08/06 – 12/06)
THRUST LEADER, NANOCATALYSIS, Nanocenter, University of South Carolina (11/05 – 09/14)
ASSISTANT PROFESSOR, Department of Chemical Engineering, University of South Carolina (08/99 – 07/05)
NSF-NATO POST-DOCTORAL FELLOW, Physical Chemistry, University of Oxford, U.K. (12/97 – 07/99)

PROFESSIONAL SOCIETIES

American Institute of Chemical Engineers
American Chemical Society
American Association for the Advancement of Science
North American Catalysis Society
Southeastern Catalysis Society
Tau Beta Pi

HONORS AND AWARDS

Excellence in Catalysis Award, The Catalysis Society of Metropolitan New York (2022)
Research Achievement Award, College of Engineering and Computing, USC (2013)
Joseph H. Gibbons Teaching Award, Department of Chemical Engineering, USC (2012)
Samuel Litman Distinguished Professor Award, College of Engineering and Computing, USC (2008)
USC Mortar Board Award for Excellence in Teaching, USC (2005)
USC Golden Key Award for Creative Integration of Research and Undergraduate Teaching, USC (2004)
NSF-Faculty Early Career Development (CAREER) Award (2001)
NSF-NATO Postdoctoral Fellowship (1997-98), Purdue University Magoon Award for Excellence in Teaching (1997)
Purdue University School of Chemical Engineering Research Excellence Award (1997)
University of Delaware Engineering Scholar (1991-93)

RESEARCH INTERESTS

Heterogeneous Catalysis. Catalytic Hydrogenation. Adsorption at Liquid- and Gas-Solid Interfaces. Nanostructured Catalysts Design. Surface-Enhanced Raman and Infrared Spectroscopies. Chemical Reaction Engineering.

TEACHING EXPERIENCE

INSTRUCTOR, ECHE 101 *Introduction to Chemical Engineering*, USC, F'11-12
INSTRUCTOR, ECHE 300 *Chemical Process Principles*, USC, F'00-01,07,14-25; S'00-04,08-10,12,13,15-25
INSTRUCTOR, ECHE 430 *Chemical Engineering Kinetics*, USC, F'02-05, F'08,09
INSTRUCTOR, ECHE 730 *Chemical Reactor Design*, USC, S'05
INSTRUCTOR, ECHE 789C *Fundamentals of Industrial Catalysis*, USC, S'06; *Catalysis*, USC, S'10
INSTRUCTOR, ECHE 789 *Musings in Catalysis: From Concepts to Applications*, USC, F'19,21 (co-taught w/ Monnier)
INSTRUCTOR, ECHE 789W *Optical Techniques for the Study of Interfacial Phenomena*, USC, F'99
TEACHING ASSISTANT, *Material and Energy Balances*, Purdue U., S'97, *Materials Science and Eng.*, Purdue U., S'95

REFEREED JOURNAL ARTICLES *(134 total, Google Scholar: h-index = 55; i-10 index = 119)*

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1. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Real-Time Probe of Catalytic Mechanisms at High Gas Pressures: The CO-NO Reaction on Rhodium," A. A. Tolia, C. T. Williams, C. G. Takoudis and M. J. Weaver, *J. Phys. Chem.* **99(13)**, 4599-4508 (1995).
2. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Real-Time Probe of Catalytic Mechanisms at High Gas Pressures: The NO-H_2 Reaction on Rhodium," A. A. Tolia, C. T. Williams, M. J. Weaver and C. G. Takoudis, *Langmuir* **11(9)**, 3438-3445 (1995).
3. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Real-Time Probe of NO Reduction Over Rhodium at High Gas Pressures," C. T. Williams, A. A. Tolia, M. J. Weaver and C. G. Takoudis, *Chem. Eng. Sci.* **51(10)**, 1673-1682 (1996).
4. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Real-Time Probe of Catalytic Mechanisms at High Gas Pressures: The CO-NO Reaction on Platinum and Palladium," C. T. Williams, A. A. Tolia, H. Y. H. Chan, C. G. Takoudis and M. J. Weaver, *J. Catal.* **163(1)**, 63-76 (1996).
5. "Adsorption and Hydrogenation of Carbon Monoxide on Polycrystalline Rhodium at High Gas Pressures," C. T. Williams, C. A. Black, M. J. Weaver and C. G. Takoudis, *J. Phys. Chem. B* **101(15)**, 2874-2883 (1997).
6. "Raman Spectral Evidence of Reactive Oxide Formation During Methanol Oxidation on Polycrystalline Rhodium at High Gas Pressures," C. T. Williams, C. G. Takoudis and M. J. Weaver, *J. Catal.* **170(1)**, 207-210 (1997).
7. "Methanol Oxidation on Rhodium as Probed by Surface-Enhanced Raman and Mass Spectroscopies: Adsorbate Stability, Reactivity, and Catalytic Relevance," C. T. Williams, C. G. Takoudis and M. J. Weaver, *J. Phys. Chem. B* **102(2)**, 406-416 (1998).
8. "Methanol Oxidation on Palladium Compared to Rhodium at Ambient Pressures as Probed by Surface-Enhanced Raman and Mass Spectroscopies," H. Y. H. Chan, C. T. Williams, M. J. Weaver and C. G. Takoudis, *J. Catal*. **174(2)**, 191-200 (1998).
9. "Surface Potentials of Metal-Gas Compared with Analagous Electrochemical Interfaces as Probed by Adsorbate Vibrational Frequencies," M. J. Weaver, C. T. Williams, S. Zou, H. Y. H. Chan and C. G. Takoudis, *Catal. Lett.* **52(3-4)**, 181-190 (1998).
10. "Probing Molecular Vibrations at Catalytically Significant Interfaces: A New Generality of Surface-Enhanced Raman Scattering," S. Zou, C. T. Williams, E. K.-Y. Chen and M. J. Weaver, *J. Am. Chem. Soc.* **120(15)**, 3811-3812 (1998).
11. "*In-Situ* Real-Time Studies of Heterogeneous Catalytic Mechanisms at Ambient Pressures as Probed by Surface-Enhanced Raman and Mass Spectroscopies," C. T. Williams, H. Y. H Chan, M. J. Weaver and C. G. Takoudis, *Ind. Eng. Chem. Res.* **37(6)**, 2307-2315 (1998).
12. "Reduction Kinetics of Surface Rhodium Oxide by Hydrogen and Carbon Monoxide at Ambient Gas Pressures as Probed by Transient Surface-Enhanced Raman Spectroscopy," C. T. Williams, E. K.-Y. Chen, C. G. Takoudis and M. J. Weaver, *J. Phys. Chem. B* **102(24)**, 4785-4794 (1998).
13. "Surface-Enhanced Raman Scattering as a Ubiquitous Vibrational Probe of Transition-Metal Interfaces: Benzene and Related Chemisorbates on Palladium and Rhodium in Aqueous Solution," S. Zou, C. T. Williams, E. K.-Y. Chen and M. J. Weaver, *J. Phys. Chem. B.* **102(45)**, 9039-9049 (1998).
14. "Prospects for Detecting Metal-Adsorbate Vibrations by Sum-Frequency Spectroscopy," C. T. Williams, Y. Yang, C. D. Bain, *Catal. Lett.* **61(1-2)**, 7-13 (1999).
15. "Formation and Stability of Oxide Films on Platinum-Group Metals in Electrochemical and Related Environments as Probed by Surface-Enhanced Raman Spectroscopy: Dependence on the Chemical Oxidant," S. Zou, H. Y. H. Chan, C. T. Williams, and M. J. Weaver, *Langmuir* **16(2)**, 754-763 (2000).
16. "Unusually Fast Electron and Anion Transport Processes Observed in the Oxidation of 'Electrochemically Open' Microcrystalline [{M(bipy)$_2$}{M′(bipy)$_2$}(μ-L)(PF_6)] Complexes (M,M′=Ru,Os; bipy=2,2′-bipyridyl; L = 1,4-Dihydroxy-2,5-Bis(Pyrazol-1-yl)-Benzene) at a Solid Electrode-Aqueous Electrolyte Interface," A. M. Bond, F. Marken, C. T. Williams, D. A. Beattie, T. E. Keys, R. J. Forster and J. G. Vos, *J. Phys Chem. B* **104(9)**, 1977-1983 (2000).

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18. "Total-Internal Reflection Sum-Frequency Spectroscopy: A Strategy for Studying Molecular Adsorption on Metal Surfaces," C. T. Williams, Y. Yang, C. D. Bain, *Langmuir* **16(5)**, 2343-2350 (2000).
19. "Probing Buried Interfaces with Non-Linear Optical Spectroscopy," C. T. Williams and D. A. Beattie, *Surf. Sci.,* **500(1-3)**, 545-576 (2002).
20. "In-situ Raman Investigation of Cinchonidine Adsorption on Polycrystalline Platinum in Ethanol," W. Chu, R. J. LeBlanc, and C. T. Williams, *Catal. Comm.,* **3(12)**, 547-552 (2002).
21. *"In-Situ* Investigation of Solid-Liquid Catalytic Interfaces by Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez and C. T. Williams, *Langmuir*, **19(7)**, 2956-2962 (2003).
22. "Aliphatic Nitrile Adsorption on Al_2O_3 and ZrO_2 as Studied by Total Internal Reflection Sum-Frequency Spectroscopy," M. R. Strunk and C. T. Williams, *Langmuir*, **19(22)**, 9210-9215 (2003).
23. "Vibrational Band Assignments for the Chiral Modifier Cinchonidine: Implications for Surface Studies," W. Chu, R. J. LeBlanc, C. T. Williams, J. Kubota, and F. Zaera, *J. Phys. Chem. B,* **107(51)**, 14365-14373 (2003).
24. "Surface Raman Characterization of Cinchonidine-Modified Platinum in Ethanol: Effects of Liquid-Phase Concentration and Co-Adsorbed Hydrogen," R. J. LeBlanc, W. Chu and C. T. Williams, *J. Mol. Catal. A,* **212(1-2)**, 277-289 (2004).
25. "Synthesis and Microscopic Characterization of Dendrimer-Derived Ru/Al_2O_3 Catalysts," G. Lafaye, C. T. Williams and M. D. Amiridis, *Catal. Lett.* **96(1-2)**, 43-47 (2004).
26. "Surface Raman Characterization of Cinchonidine-Modified Polycrystalline Platinum in Ethanol: Effects of Temperature and Comparison With 10,11-Dihydrocinchonidine," R. J. LeBlanc and C. T. Williams, *J. Mol. Catal. A* **220(2)**, 207-214 (2004).
27. "Molecular Dynamics Simulations of Cinchonidine-Modified Platinum in Ethanol: Comparisons with Surface Studies," S. R. Calvo, R. J. LeBlanc, C. T. Williams and P. B. Balbuena, *Surf. Sci.* **563(1-3)**, 57-73 (2004).
28. "Decomposition and Activation of Pt-Dendrimer Nanocomposites on a Silica Support," D. S. Deutsch, G. Lafaye, D. Liu, B. D. Chandler, C. T. Williams, and M. D. Amiridis, *Catal. Lett.* **97(3-4)**, 139-143 (2004).
29. "*In-Situ* Attenuated Total Reflection Infrared Spectroscopy of Dendrimer-Stabilized Platinum Nanoparticles Adsorbed on Alumina," D. Liu, J. Gao, C. J. Murphy, and C. T. Williams, *J. Phys. Chem. B* **108(34)**, 12911-12916 (2004).
30. "Thermal Decomposition of Generation-4 Polyamidoamine Dendrimer Films: Decomposition Catalyzed by Dendrimer-Encapsulated Pt Particles," O. Ozturk, T. J. Black, K. Perrine, K. Pizzolato, C. T. Williams, F. W. Parsons, J. S. Ratliff, J. Gao, C. J. Murphy, H. Xie, H. J. Ploehn, and D. A. Chen, *Langmuir*, **21(9)**, 3998-4006 (2005).
31. "AFM Characterization of Dendrimer-Stabilized Platinum Nanoparticles," Y. Gu, H. Xie, J. Gao, D. Liu, C. T. Williams, C. J. Murphy, and H. J. Ploehn, *Langmuir*, **21(7)**, 3122-3131 (2005).
32. "FTIR Studies of CO Adsorption on Al_2O_3- and SiO_2-Supported Ru Catalysts," S.-Y. Chin, C. T. Williams, and M. D. Amiridis, *J. Phys. Chem. B* **110(2)**, 871-882 (2006).
33. "Multivariate Analysis of ATR-IR Spectroscopic Data: Applications to the Solid-Liquid Catalytic Interface," I. Ortiz-Hernandez, D. J. Owens, M. R. Strunk, and C. T. Williams, *Langmuir*, **22(6)**, 2629-2639 (2006).
34. "Particle Size Control in Dendrimer-Derived Supported Ruthenium Catalysts," G. Lafaye, A. Siani, P. Marecot, M. D. Amiridis, and C. T. Williams, *J. Phys. Chem. B***, 110(15),** 7725-7731 (2006)**.**
35. "In-situ Investigation of Acetonitrile Adsorption on Al_2O_3-coated CaF_2 Using Sum-Frequency Spectroscopy," S. B. Waldrup and C. T. Williams, *J. Phys. Chem. B*, **110(33)**, 16633-16639 (2006).
36. "EXAFS Characterization of Dendrimer-Pt Nanocomposites Used for the Preparation of Pt/γ-Al_2O_3 Catalysts," O. S. Alexeev, A. Siani, G. Lafaye, C. T. Williams, H. J. Ploehn and M. D Amiridis, *J. Phys. Chem. B*, **110(49)**, 24903-24914 (2006).

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37. "Probing Powder Supported Catalysts with Sum Frequency Spectroscopy," S. B. Waldrup and C. T. Williams, *Catal. Comm*., **8**, 1373-1376 (2007).
38. "In Situ Studies of Butyronitrile Adsorption and Hydrogenation on Pt/Al_2O_3 using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez and C. T. Williams, *Langmuir*, **23(6)**, 3172-3178 (2007).
39. "FTIR Investigation of the Thermal Decomposition of Poly(amidoamine) (PAMAM) Dendrimers and Dendrimer-Metal Nanocomposites Supported on Al_2O_3 and ZrO_2," D. S. Deutsch, A. Siani, P. T. Fanson, H. Hirata, S. Matsumoto, C. T. Williams, and M. D. Amiridis, *J. Phys. Chem. C*, **111(11)**, 4246-4255 (2007).
40. "Hydrogenation of 3,4-Epoxy-1-Butene over $Cu-Pd/SiO_2$ Prepared by Electroless Deposition ," M. T. Schaal, A. Y. Metcalf, J. H. Montoya, J. P. Wilkinson, C. C. Stork, C. T. Williams, and J. R. Monnier, *Catal. Today*, **123(1-4)**, 142-150 (2007).
41. "Acetonitrile Adsorption on Polycrystalline Platinum: An in Situ Investigation Using Sum Frequency Spectroscopy," S. B. Waldrup and C. T. Williams, *J. Phys. Chem. C*, **112(1)**, 219-226 (2008).
42. "Characterization and Evaluation of $Ag-Pt/SiO_2$ Catalysts Prepared by Electroless Deposition", M. T. Schaal, A. C. Pickerell, C. T. Williams, J. R. Monnier, *J. Catal.* **254(1)**, 131-143 (2008).
43. "Degradation Characteristics of Elastomeric Gasket Materials in a Simulated PEM Fuel Cell Environment," J. Tan, Y. J. Chao, M. Yang, C. T. Williams, and J. W. Van Zee, *J. Mater. Eng. Perform.*, **17(6)**, 785-792 (2008).
44. "Synthesis and Characterization of Dendrimer-Derived Supported Iridium Catalysts," Y. M. López-De Jesús, A. Vicente, G. Lafaye, P. Marécot and C. T. Williams, *J. Phys. Chem. C*, **112(36)**, 13837–13845 (2008).
45. "Hydrodechlorination of 1,2-Dichloroethane Catalyzed by Dendrimer-Derived $Pt–Cu/SiO_2$ Catalysts," H. Xie, J. Y. Howe, V. Schwartz, J. R. Monnier, C. T. Williams and H. J. Ploehn, *J. Catal.*, **259(1)**, 111-122 (2008).
46. "Theoretical and Experimental Studies of Ag-Pt Interactions for Supported Ag-Pt Bimetallic Catalysts," M. T. Schaal, M. P. Hyman, M. Rangan, S. Ma, C. T. Williams, J. R. Monnier and J. W. Medlin, *Surf. Sci.*, **603(4)**, 690-696 (2009).
47. "In situ FTIR Spectroscopic Studies of Limonene Epoxidation over PW-Amberlite", R. B. Zapata, A. Luz Villa, C. Montes de Correa and C. T. Williams, *Appl. Catal. A: Gen.* **365(1)**, 42-47 (2009).
48. "Dendrimer-Mediated Synthesis of Subnanometer-Sized Rh Particles Supported on ZrO_2," A. Siani, O. S. Alexeev, D. S. Deutsch, J. Monnier, P. T. Fanson, H. Hirata, S. Matsumoto, C. T. Williams and M. D. Amiridis, *J. Catal.* **252(2)**, 331-342 (2009).
49. "PAMAM Dendrimer-Derived Ir/Al_2O_3 Catalysts: An EXAFS Characterization," Y. M. López-De Jesús and C. T. Williams, *Catal. Lett.* **132**, 430-437 (2009).
50. "Preparation, Characterization and Kinetic Evaluation of Dendrimer-Derived Bimetallic $Pt-Ru/SiO_2$ Catalysts," D. Liu, Y. M. López de Jesús, J. R. Monnier and C. T. Williams, *J. Catal.* **269(2)**, 376-387 (2010).
51. "Synthesis and Characterization of $Au–Pd/SiO_2$ Bimetallic Catalysts Prepared by Electroless Deposition," J. Rebelli, M. Detwiler, S. Ma, C. T. Williams and J. R. Monnier, *J. Catal.* **270(2)**, 224-233 (2010).
52. "Selective Hydrogenation of Benzonitrile by Alumina-Supported Ir-Pd Catalysts," Y. M. López-De Jesús, C. E. Johnson, J. R. Monnier and C. T. Williams, *Top. Catal.* **53(15-18)**, 1132-1137 (2010).
53. "Effect of liquid phase reducing agents on the dispersion of supported Pt catalysts," M. T. Schaal, J. Rebelli, H. M. McKerrow, C. T. Williams, and J. R. Monnier, *Appl. Catal. A: Gen.* **382(1)**, 49-57 (2010).
54. "In Situ FTIR Spectroscopic Analysis of Carbonate Transformations during Adsorption and Desorption of CO_2 in K-Promoted HTlc," H. Du, C. T. Williams, A. D. Ebner and J. A. Ritter, *Chem. Mater.* **22(11)**, 3519-3526 (2010)
55. "Influence of the Nature of the Precursor Salts on the Properties of $Rh-Ge/TiO_2$ Catalysts for Citral Hydrogenation," A. Vicente, T. Ekou, G. Lafaye, C. Especel, P. Marecot and C. T. Williams, *J. Catal.* **275(2)**, 202-210 (2010).

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56. "Synthesis and Catalytic Properties for Phenylacetylene Hydrogenation of Silicide Modified Nickel Catalysts," X. Chen, A. Zhao, Z.-F. Shao, C. Li, C. T. Williams, C.-H. Liang, *J. Phys. Chem. C* **114(39)**, 16525-16533 (2010).
57. "Preparation and Characterization of Silica-Supported, GroupIB–Pd Bimetallic Catalysts Prepared by Electroless Deposition Methods," J. Rebelli, A. A. Rodriguez, S. Ma, C.T. Williams and J. R. Monnier, *Catal. Today*, **160(1)**, 170-178 (2011).
58. "Effects of Synthetic Parameters on the Structure and Catalytic Performance of Cu−Cr Catalysts Prepared by a Non-Alkoxide Sol−Gel Route," Z. Xiao, Z. Ma, X. Wang, C. T. Williams, and C.-H. Liang, *Ind. Eng. Chem. Res.* **50(4)**, 2031–2039 (2011).
59. "Catalyst Development for Ultra-Deep Hydrodesulfurization (HDS) of Dibenzothiophenes: (I) Effects of Ni Promotion in Molybdenum-Based Catalysts," Q. Gao, T. K. Ofosu, S. Ma, V. Komvokis, C. T. Williams and K. Segawa, *Catal. Today*, **164(1)**, 538-543 (2011).
60. "The Formation Mechanism of Cobalt Silicide on Silica from $Co(SiCl_3)(CO)_4$ by *In Situ* Fourier Transform Infrared Spectroscopy," A. Zhao, X. Chen, J. Guan, C. T. Williams and C.-H. Liang, *Phys. Chem. Chem. Phys.* **13(20)**, 9432-9438 (2011).
61. "Thermal Dehydration and Vibrational Spectra of Hydrated Sodium Metaborates,"A. M. Beaird, P. Li, H. S. Marsh, W. A. Al-Saidi, J. K. Johnson, M. A. Matthews, and C. T. Williams, *Ind. Eng. Chem. Res.*, **50 (13)**, 7746–7752 (2011).
62. "ATR-IR study of the adsorption of 2′-hydroxyacetophenone and benzaldehyde on MgO" J. A. Cortes-Concepcion, C. T. Williams, and M. D. Amiridis, *Catal. Commun.* **16(1)**, 198-204 (2011).
63. "Unsupported NiMoW Sulfide Catalysts for Hydrodesulfurization of Dibenzothiophene by Thermal Decomposition of Thiosalts," Y. Yi, B. Zhang, X. Jin, L. Wang, C. T. Williams, G. Xiong, D. Su, and C. Liang, *J. Mol. Catal. A: Chemical* **351**, 120-127 (2011).
64. "In Situ ATR-IR Study of Prochiral 2-Methyl-2-Pentenoic Acid Adsorption on Al_2O_3 and Pd/Al_2O_3," S. Tan, X. Sun and C. T. Williams, *Phys. Chem. Chem. Phys.* **13**, 19573-19579 (2011).
65. "The Relationship Between the Structural Properties of Bimetallic Pd–Sn/SiO_2 Catalysts and Their Performance for Selective Citral Hydrogenation," A. Vicente, G. Lafaye, C. Especel, P. Marécot and C. T. Williams, *J. Catal.* **283(2)**, 133-142 (2011).
66. "A Facile and Novel Approach to Magnetic Fe@SiO_2 and $FeSi_2$@SiO_2 Nanoparticles," M. Li, X. Chen, J. Quan, X. Wang, J. Wang, C. T. Williams and C. Liang, *J. Mater. Chem.* **22**, 609-616 (2012)
67. "In-situ ATR-IR Investigation of Methylcinnamic Acid Adsorption and Hydrogenation on Pd/Al_2O_3," X. Sun and C. T. Williams, *Catal. Commun.* **17(1)**, 13-17 (2012).
68. "Chemical Vapor Deposition of $Pd(C_3H_5)(C_5H_5)$ to Synthesize Pd@MOF-5 Catalysts for Suzuki Coupling Reaction," M. Zhang, J. Guan, B. Zhang, D. Su, C. T. Williams, C. Liang, *Catal. Lett.* **142(3)**, 313-318 (2012).
69. "Evidence of Electrochemical Graphene Functionalization by Raman Spectroscopy," K. M. Daniels, B. K. Daas, N. Srivastava, C. T. Williams, R. M. Feenstra, T.S. Sudarshan, MVS Chandrashekhar, *Materials Science Forum* **717-720**, 661-664 (2012).
70. "Evidences of electrochemical graphene functionalization and substrate dependence by Raman and scanning tunneling spectroscopies," K. M. Daniels, B. K. Daas, N. Srivastava, C. T. Williams, R. M. Feenstra, T.S. Sudarshan, MVS Chandrashekhar, *J. Appl. Phys.* **111(11)**, 114306/1-114306/7 (2012).
71. "Nickel-Silicon Intermetallics with Enhanced Selectivity in Hydrogenation Reactions of Cinnamaldehyde and Phenylacetylene," X. Chen, M. Li, J. Guan, X. Wang, C. T. Williams and C. Liang, *Ind. Eng. Chem. Res.* **51(9)**, 3604-3611 (2012).
72. "CO Desorption Ability from Pt Enhanced by Al_2O_3: An in Situ Real-Time Attenuated Total Reflection Infrared Investigation," G. Hu, H. Gao and C. T. Williams, *J. Phys. Chem. C* **116 (10)**, 6247–6250 (2012).
73. "Structural and Electrochemical Properties of Nanostructured Nickel Silicides by Reduction and Silicification of High-Surface-Area Nickel Oxide," X. Chen, B. Zhang, C. Li, Z. Shao, D. Su, C. T. Williams and C. Liang, *Mater. Res. Bull.* **47(3)**, 867–877 (2012).

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75. "Microwave-Assisted Green Synthesis of Uniform Ru Nanoparticles Supported on Non-Functional Carbon Nanotubes for Cinnamaldehyde Hydrogenation," X. Ni, B. Zhang, C. Li, M. Pang, D. Su, C. T. Williams, C. Liang, *Catal. Comm.* **24**, 65-69 (2012).
76. "'Ship-in-a-Bottle' Synthesis of MoS2/MCM-41 Catalysts by Decomposition of Single Source Precursor in Mesoporous Channel," H. Fan, X. Jin, L. Wang, C. T. Williams, T. Cai, C. Liang, *Catal. Lett.* **142(7)**, 854-859 (2012).
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PRESENTATIONS - *TECHNICAL MEETINGS*

Invited – presented by CTW

1. Talk - "In-Situ Vibrational Spectroscopic Investigation of Solid-Liquid Catalytic Interfaces," R. J. LeBlanc, I. Ortiz-Hernandez, M. R. Strunk, and C. T. Williams (pres.), ACS National Mtg., New Orleans, LA, March, 2003.
2. Talk - "Surface-Enhanced Raman Spectroscopy as an In-Situ Probe of Catalytic Interfaces: Progress and Prospects," C. T. Williams, ACS National Meeting, New York, NY, September, 2003.
3. Talk - "In-situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, ACS National Meeting, Anaheim, CA, April, 2004.
4. Talk - "Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, AIChE Annual Meeting, Cincinnati, OH, November 2005.
5. Talk - "Dendrimer Metal Nanocomposites for Synthesis of Controlled-Structure Supported Metal Catalysts," C. T. Williams, Gratama Workshop, Awaji, Hyogo, Japan, October 2006.
6. Talk - "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Regional Meeting, Catalysis Society of Japan, University of Osaka, Osaka, Japan, November 2006.
7. Talk - "In-situ and Operando Spectroscopy of Solid-Catalyzed Liquid-Phase Reactions: Progress and Prospects," C. T. Williams (presenter), VI Colombian Sympos. on Catalysis (VI SICCAT), Medellin, Colombia, Oct. 2009.
8. Talk – "Vibrational Spectroscopy at Solid-Liquid Catalytic Interfaces: Progress and Prospects" C. T. Williams (presenter), Gordon Research Conference on Catalysis, Colby-Sawyer College, New London, NH, June 2010.
9. Talk – "Viewing the Solid Catalyst - Liquid Interface with Attenuated Total Reflection Infrared Spectroscopy," C. T. Williams (presenter), Gordon Research Conference on Vibrational Spectroscopy, University of New England, Biddeford, ME, August, 2012.
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14. Talk – "Viewing the Solid-Liquid Catalytic Interface with Total Internal Reflection Vibrational Spectroscopy," C. T. Williams, Joint Workshop of Surface Science and Catalysis, State Key Laboratory for Physical Chemistry of Solid Surfaces, Xiamen University, Xiamen, Fujian, China, January 2014.
15. Keynote Talk - "Synthesis of Supported Single Atom Catalysts Via Chelate Fixation," A. Shakouri, H. A. Firouzjaie, S. G. Karakalos, C. T. Williams (presenter) and J. R. Regalbuto, 27th North American Catalysis Society Meeting, New York, NY, May 2022.
16. Award Lecture – "Simple Synthesis of Highly Dispersed Supported Metal Catalysts via Switched Solvent Synthesis and Chelate Fixation," C. T. Williams (presenter), The Catalysis Society of Metropolitan New York, Excellence in Catalysis Award Lecture, New York, NY, November 2022.

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16. Talk - "Characterization of Nitrile/Metal Oxide Interfaces using IR-Visible Sum-Frequency Generation," M. R. Strunk and C. T. Williams (presenter), North American Catalysis Society Meeting, Cancun, Mexico, June, 2003.
17. Talk - "In-Situ Raman Studies of Cinchonidine Adsorption on Platinum as a Function of Liquid-Phase Concentration, Temperature, and Co-adsorbed Hydrogen," R. J. LeBlanc and C. T. Williams (presenter), 77th ACS Colloid and Surface Science Symposium, Atlanta, June, 2003.
18. Talk – "Aliphatic Nitrile Adsorption on Al_2O_3 and ZrO_2 as Studied by Total Internal relfection Sum-Frequency Spectroscopy," M. R. Strunk and C. T. Williams (presenter), AIChE Annual Mtg., San Franc., CA, Nov., 2003.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by CTW (cont.)

19. Poster – "*In-Situ* Investigation of Supported Catalyst-Liquid Interfaces by Attenuated Total Reflection Infrared Spectroscopy: Applications of Multivariate Analysis for Spectral Interpretation," I. Ortiz-Hernandez, D. J. Owens and C. T. Williams (presenter), AIChE Annual Meeting, San Francisco, CA, November, 2003.
20. Talk – "Synthesis and Characterization of Dendrimer-Derived Bimetallic Pt-Ru and Pt-Sn Catalysts," G. Lafaye, O. S. Alexeev, D. S. Deutsch, S.-Y. Chin, K. A. Hristova, C. T. Williams (presenter) and M. D. Amiridis, AIChE Annual Meeting, Austin, TX, November, 2004.
21. Talk – "Dendrimer-Stabilized Nanoparticles for Advanced Catalyst Synthesis," C.T. Williams (presenter), H. J. Ploehn, and M. D. Amiridis, North American Catalysis Soc. Meeting, Philadelphia, PA, May 2005.
22. Talk - "Characterization and Kinetic Evaluation of Dendrimer-Derived Bimetallic Catalysts for the Selective Hydrogenation of 3,4-Epoxy-1-Butene," D. Liu, H. Xie, Y. M. Lopez, M. D. Casper, H. J. Ploehn, J. R. Monnier, and C. T. Williams (presenter), AIChE Annual Mtg., Cincinnati, OH, Nov. 2005.
23. Talk – "In-Situ Studies of Supported Catalysts in the Liquid Phase Using ATR-IRS and TIR-SFS," S. B Waldrup, I. Ortiz-Hernandez, and C. T. Williams (presenter), ACS National Mtg, San Francisco, CA, Sep. 2006.
24. Talk – "Dendrimer-Metal Nanocomposites for Synthesis of Controlled-Structure," C. T. Williams (presenter), O. S. Alexeev, and M. D. Amiridis, International Conference on Nanocatalysis: Fundamentals & Applications, Dalian, China, July 2008.
25. Poster – "Characterization and Evaluation of Ag-Pt/SiO_2 Catalysts Prepared via Electroless Deposition," M. T. Schaal, C. T Williams (presenter), and J. R. Monnier, 14th Intl. Congress on Catal., Seoul, S. Korea, July 2008.
26. Poster – "Synthesis and Characterization of PAMAM-OH Dendrimer-Derived Supported Iridium Catalysts," Y. M. López-De Jesús, A. Vicente, G. Lafaye, P. Marécot, O. S. Alexeev, J. R. Monnier, and C. T. Williams (presenter), 14th International Congress on Catalysis, Seoul, North Korea, July 2008.
27. Poster – "Catalytic Hydrodeoxygenation of Propionic Acid over Supported Group VIII Noble Metals," Y. K. Lugo-José, J. R. Monnier and C. T. Williams (presenter), 2nd International Congress on Catalysis for Biorefineries (CatBior), Dalian Institute of Chemical Physics, Dalian, Liaoning, China, September 2013.
29. Poster - "Synthesis of Supported Pd/Au Dilute Limit Alloy Nanoparticles," A. Shakouri, A. Dong, C. T. Williams (presenter) and J. R. Regalbuto, 27th N. American Catalysis Society Mtg., New York, NY, May 2022.
28. Talk - "Supported Single Atom Catalyst Design, Synthesis, and Characterization Via Chelate Fixation Method," S. Oruji, A. Shakouri, B. Vakili, C. T. Williams (presenter) and J. R. Regalbuto, AIChE Annual Student Meeting, Phoenix, AZ, November 2022.
29. Talk – "Hydrogenation of Dimethyl Oxalate to Ethylene Glycol over SiO2-Supported Cu- and Ag-Based Catalysts: Insights and Prospects," N. Gleason-Boure, X. Yu and C. T Williams (presenter), 28th North American Catalysis Society Meeting, Providence, RI, June 2023.

Contributed – presented by post-doctoral researchers supervised by CTW

1. Poster - "Characterization of Nitrile/Metal Oxide Interfaces using IR-Visible Sum-Frequency Generation," M. R. Strunk (presenter) and C. T. Williams, ACS National Meeting, Boston, MA, August, 2002.
2. Poster - "Characterization of Nitrile/Metal Oxide Interfaces using IR-Visible Sum-Frequency Generation," M. R. Strunk (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2002.
3. Talk - "Characterization of Nitrile/Metal Oxide Interfaces using IR-Visible Sum-Frequency Generation," M. R. Strunk (presenter) and C. T. Williams, AIChE Annual Meeting, Indianapolis, IN, November, 2002.
4. Talk - "Characterization of Nitrile/Metal Oxide Interfaces Using IR-visible Sum-Frequency Generation," M. R. Strunk (presenter) and C. T. Williams, 77th ACS Colloid and Surface Science Symposium, Atlanta, June, 2003.
5. Poster - "Adsorption of aliphatic nitriles on oxide surfaces: A sum-frequency investigation," M. R. Strunk (presenter) and C. T. Williams, ACS National Meeting, New York, NY, September, 2003.
6. Talk – "Synthesis and Characterization of Dendrimer-Derived Bimetallic Pt-Ru Catalysts," G. Lafaye (presenter), M. D. Amiridis and C. T. Williams, SE Catalysis Society Meeting, Asheville, NC, September, 2003.
7. Talk – "Synthesis and Characterization of Dendrimer-Derived Bimetallic Pt-Ru Catalysts," G. Lafaye (presenter), S.-Y. Chin, M. D. Amiridis and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*
Contributed – presented by graduate students supervised by CTW

1. Poster - "In-Situ Raman Studies of Cinchonidine Adsorption on Platinum as a Function of Liquid-Phase Concentration and Temperature," R. J. Le Blanc (presenter), W. Chu and C. T. Williams, AIChE Annual Meeting, Reno, NV, November, 2001.
2. Poster - "In-Situ Investigation of the Pt/Al_2O_3/Solution Interface Using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (present.) and C. T. Williams, AIChE Ann. Meeting., Reno, NV, Nov., 2001.
3. Poster - "In-Situ Raman Studies of Cinchonidine Adsorption on Platinum as a Function of Liquid-Phase Concentration and Temperature," R. J. Le Blanc (presenter) and C. T. Williams, ACS National Meeting, Orlando, FL, April, 2002.
4. Poster - "In-Situ Investigation of the Pt/Al_2O_3/Solution Interface Using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (present.) and C. T. Williams, ACS Natl. Meeting, Orlando, FL, April, 2002.
5. Poster - "Surface Raman Characterization of Cinchonidine-Modified Platinum: Effects of Liquid-Phase Concentration and Temperature," R. J. Le Blanc (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Clemson, SC, May, 2002.
6. Talk - "In-Situ Investigation of the Pt/Al_2O_3/Solution Interface using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2002.
7. Talk - "In-Situ Investigation of the Pt/Al_2O_3/Solution Interface using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (pres.) and C. T. Williams, AIChE Ann. Meet., Indianapolis, IN, Nov., 2002.
8. Poster - "Dendrimer Stabilized Nanoparticles for Next-Generation Catalysts," D. Liu (presenter), D. S. Deutsch, M. D. Amiridis, and C. T. Williams, AIChE Annual Meeting, Indianapolis, IN, November, 2002.
9. Talk - "Surface Raman Characterization of Cinchonidine-modified Platinum: Effects of Liquid-phase Concentration and Temperature," R. J. LeBlanc (presenter) and C. T. Williams, AIChE Annual Meeting, Indianapolis, IN, November, 2002.
10. Poster (1^{st} Place Prize) – "Adsorption of Dendrimer-Stabilized Metal Nanoparticles Onto Various Supports" D. Liu (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, April, 2003.
11. Talk - "Surface Raman Characterization of Cinchonidine-modified Platinum: Effects of Liquid-phase Concentration and Temperature," R. J. LeBlanc (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, April, 2003.
12. Talk - " *In-Situ* Raman Investigation of an Enantioselective Catalyst: Cinchonidine Interactions with Polycrystalline Platinum," R. J. LeBlanc (presenter) and C. T. Williams, North American Catalysis Society Meeting, Cancun, Mexico, June, 2003.
13. Poster - "*In Situ* Investigation of Solid-Liquid Catalytic Interfaces by Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (presenter) and C. T. Williams, North American Catalysis Society Meeting, Cancun, Mexico, June, 2003.
14. Talk - "*In-Situ* Investigation of the Pt/Al_2O_3/Solution Interface using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (presenter) and C. T. Williams, 77^{th} ACS Colloid and Surface Science Symposium, Atlanta, June, 2003.
15. Talk - "Adsorption of Dendrimer-Stabilized Nanoparticles onto Various Supports," D. Liu (presenter) and C. T. Williams, 77^{th} ACS Colloid and Surface Science Symposium, Atlanta, June, 2003.
16. Talk – "In-Situ Raman Investigation for the Platinum-Catalyzed Orito Reaction: Relevance of Surface Species to Proposed Reaction Pathways," R. J. LeBlanc (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
17. Talk - "Adsorption of Dendrimer-Stabilized Metal Nanoparticles onto Alumina on Route to Nanostructured Supported Catalysts," D. Liu (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
18. Talk – "In-Situ ATR-IR and SFS Investigation of Nitrile Adsorption and Hydrogenation on Pt/Al_2O_3 in the Liquid Phase", I. Ortiz-Hernandez (presenter) and C. T. Williams, AIChE Annual Mtg., Austin, TX, Nov., 2004.
19. Talk - "Synthesis and Adsorption of Dendrimer Stabilized Nanoparticles on Oxide Supports," D. Liu (presenter), H. Xie, Y. Gu, C. T. Williams, and H. J. Ploehn, North American Catalysis Society Meeting, Philadelphia, PA, May 2005.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

20. Talk – "In-Situ Studies of Liquid-Phase Nitrile Adsorption and Hydrogenation using Attenuated Total Reflection Infrared Spectroscopy," I. Ortiz-Hernandez (presenter) and C. T. Williams, North American Catalysis Society Meeting, Philadelphia, PA, May 2005.
21. Talk - "Characterization and Kinetic Evaluation of Dendrimer-Derived Bimetallic Catalysts for the Selective Hydrogenation of 3,4-Epoxy-1-Butene," D. Liu (presenter), H. Xie, Y. M. Lopez, M. D. Casper, H. J. Ploehn, J. R. Monnier, and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2005.
22. Poster - "Investigation of Solid/Liquid Interfaces by Sum-Frequency Spectroscopy: Nitrile Adsorption on Model Supports," S. B. Waldrup (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2005.
23. Poster - "Synthesis and Characterization of Dendrimer-Templated Bimetallic Pt-Cu Nanoparticles," H. Xie (presenter), C. T. Williams, H. J. Ploehn, Southeastern Catalysis Society Mtg., Asheville, NC, September, 2005.
24. Poster (2^{nd} place prize) - "Characterization and Kinetic Evaluation of Silver-Platinum Bimetallic Catalysts Prepared via Electroless Deposition," M. T. Schaal (presenter), T. C. Hoang, A. C. Pickerell, J. R. Monnier, and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2005.
25. Talk - "Investigation of Solid/Liquid Interfaces by Sum-Frequency Spectroscopy: Nitrile Adsorption and Hydrogenation on Model Supports and Catalysts," S. B. Waldrup (presenter) and C. T. Williams, AIChE Annual Meeting, Cincinnati, OH, November 2005.
26. Talk - "Synthesis and Characterization of Dendrimer-Stabilized Bimetallic Pt-Cu Nanoparticles," H. Xie (presenter), D. Liu, C. T. Williams, and H. J. Ploehn, AIChE Annual Meeting, Cincinnati, OH, November 2005.
27. Talk - "Characterization and Kinetic Evaluation of Silver-Containing Bimetallic Catalysts Prepared via Electroless Deposition," M. T. Schaal (presenter), A. C. Pickerell, C. T. Hoang, J. R. Monnier, and C. T. Williams, AIChE Annual Meeting, Cincinnati, OH, November 2005.
28. Talk - "Dendrimer-stabilized Bimetallic Pt-Cu Nanoparticles: Synthesis, Characterization, and Catalytic Evaluation," , H. Xie (presenter), J. R. Monnier, C. T. Williams, and H. J. Ploehn, 231st ACS National Meeting, Atlanta, GA, March 2006.
29. Talk - "Investigation of Solid/Liquid Interfaces by Sum Frequency Spectroscopy: Acetonitrile Adsorption on Model Supports," S. B. Waldrup (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2006.
30. Poster (1^{st} place prize) - "Synthesis and Characterization of Dendrimer-Derived Ir/γ-Al_2O_3 Catalysts," Y. M. López-De Jesús (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2006.
31. Talk - "Hydrodechlorination of 1,2-Dichloroethane over Supported Pt-Cu Catalysts," H. Xie (presenter), J. R. Monnier, C.T. Williams, and H. J. Ploehn, Southeastern Catalysis Society Meeting, Asheville, NC, Sept., 2006.
32. Talk – "Characterization and Kinetic Evaluation of Ag-Pt Bimetallic Catalysts Prepared by Electroless Deposition," M. T. Schaal (presenter), A. C. Pickerell, J. R. Monnier, and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2006.
33. Talk – "Investigation of Solid/Liquid Interfaces by Sum-Frequency Spectroscopy: Acetonitrile Adsorption on Model Supports and Pt Covered Supports," S. B. Waldrup (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2006.
34. Talk - "Synthesis and Characterization of Dendrimer-Derived Ir/γ-Al_2O_3 Catalysts," Y. M. López-De Jesús (presenter), O. S. Alexeev and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2006.
35. Poster - "Investigation of Solid/Liquid Interfaces by Sum Frequency Spectroscopy: Acetonitrile Adsorption and Hydrogenation on Pt/Al_2O_3," S. B. Waldrup (presenter) and C. T. Williams, North American Catalysis Society Meeting, Houston, TX, June 2007.
36. Poster - "Synthesis and Characterization of PAMAM-OH Dendrimer-Derived Iridium Supported Catalysts," Y. M. López-De Jesús (presenter), O. S. Alexeev and C.T. Williams, North American Catalysis Society Meeting, Houston, TX, June 2007.
37. Talk – "Characterization and Kinetic Evaluation of Ag-Pt Bimetallic Catalysts Prepared by Electroless Deposition," M. T. Schaal (presenter), C. T. Williams and J. R. Monnier, North American Catalysis Society Meeting, Houston, TX, June 2007.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

38. Poster – "Characterization and Catalytic Evaluation of Dendrimer-Derived Pt-Cu/SiO_2 Catalysts," H. Xie (presenter), J. R. Monnier, C. T. Williams and H. J. Ploehn, North American Catalysis Society Meeting, Houston, TX, June 2007.
39. Poster – "Synthesis and Characterization of Au-Pt/SiO_2 Catalysts Prepared by Electroless Deposition Methods," J. Rebelli (presenter), J. H. Montoya, M. T. Schaal, C. T. Williams and J. R. Monnier, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2007.
40. Talk – "Synthesis and Characterization of Dendrimer-Derived Iridium Supported Catalysts," Y. M. López-De Jesús (presenter), A. Vicente, G. Lafaye, P. Marécot, O. S. Alexeev, J. R. Monnier and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2007.
41. Talk – "Preparation, Characterization, and Evaluation of Bimetallic Catalysts Prepared by Electroless Deposition Methods," J. R. Monnier, M. T. Schaal (presenter), C. T. Williams, AIChE Annual Meeting, Salt Lake City, UT, November 2007.
42. Talk – ""Synthesis and Characterization of Dendrimer-Derived Iridium Supported Catalysts," Y. M. López-De Jesús (presenter), A. Vicente, G. Lafaye, P. Marécot, O. S. Alexeev, J. R. Monnier and C. T. Williams, ACS National Meeting, New Orleans, LA, April 2008.
43. Talk – "Synthesis and Characterization of Au-Pt/SiO_2 Catalysts Prepared by Electroless Deposition Methods," J. Rebelli (presenter), J. H. Montoya, M. T. Schaal, C. T. Williams and J. R. Monnier, AIChE Spring National Meeting, New Orleans, LA, April 2008.
44. Talk – "Characterization and Evaluation of Ag-Pt/SiO_2 Catalysts Prepared by Electroless Deposition," M. T. Schaal (presenter), J. R. Monnier, and C. T. Williams, 82nd ACS Colloid and Surface Science Symposium, Raleigh, NC, June 2008.
45. Poster – "Synthesis and Characterization of Au-Pt/SiO_2 Catalysts Prepared by Electroless Deposition Method," J. Rebelli (presenter), J. H. Montoya, M. T. Schaal, C. T. Williams and J. R. Monnier, 82nd ACS Colloid and Surface Science Symposium, Raleigh, NC, June 2008.
46. Talk – "Synthesis and Characterization of Dendrimer-Derived Supported Ir and Ir-Pd Catalysts," Y. M. López-De Jesús (presenter), A. Vicente, G. Lafaye, P. Marécot, O. S. Alexeev, J. R. Monnier and C. T. Williams, 82nd ACS Colloid and Surface Science Symposium, Raleigh, NC, June 2008.
47. Talk - "Synthesis and Characterization of Au-Pt/SiO_2 Catalysts Prepared by Electroless Deposition Method," J. Rebelli (presenter), M. Detwiler, J. H. Montoya, M. T. Schaal, C. T. Williams and J. R. Monnier, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2008.
48. Talk - "Dendrimer-Derived Bimetallic Ir-Based/γ-Al_2O_3 Catalysts for Liquid-Phase Hydrogenation Reactions" Y. M. López-De Jesús (presenter), A. Vicente, J. R. Monnier, G. Lafaye, P. Marécot and C. T. Williams, AIChE Annual Meeting, Philadelphia, PA, November 2008
49. Talk - "Silica and Alumina Pd-Sn Catalysts : Correlations Between Structure and Surface Properties of the Catalysts and Their Catalytic Performances in Citral Hydrogenation," A. Vicente (presenter), G. Lafaye, C. Especel, C. T. Williams and P. Marécot, AIChE Annual Meeting, Philadelphia, PA, November 2008
50. Talk - "High Unsaturated Alcohol Selectivity Over Silica and Alumina Pd-Sn Catalysts," A. Vicente (presenter), G. Lafaye 1, C. Especel, C. T. Williams and P. Marécot, AIChE Annual Meeting, Philadelphia, PA, Nov. 2008
51. Talk - "Synthesis and Characterization of Au-Pd/SiO_2 Catalysts Prepared by Electroless Deposition Methods," J. Rebelli (presenter), M. Detwiler, J. H. Montoya, , C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Philadelphia, PA, November 2008
52. Poster – "Characterization and Kinetic Evaluation of Dendrimer-derived Pt-Ru/SiO_2 Catalysts for Selective Hydrogenation of 3,4-Epoxy-1-Butene," D. Liu (presenter), Y. M. López-De Jesús, J. M. Monnier and C. T. Williams, North American Catalysis Society Meeting, San Francisco, CA, June 2009.
53. Poster - "Dendrimer-Derived Ir-Pd/γ-Al2O3 Catalysts," Y. M. López-De Jesús (presenter), A. Vicente, J. Monnier, G. Lafaye, P. Marécot, and C. T. Williams, North American Catalysis Society Mtg., San Francisco, CA, June 2009.
54. Poster – "Synthesis, Characterization, and Evaluation of Au Bimetallic Catalysts Prepared by Electroless Deposition Methods," J. Rebelli (presenter), M. Dettwiller , J. H. Montaya , C. T. Williams and J. R. Monnier, North American Catalysis Society Meeting, San Francisco, CA, June 2009.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

55. Poster – "The Role of Mo and Ni for Hydrodesulfurization of Dibenzothiophene, 4-Methyl Dibenzothiophene, and 4,6-Dimethyl Dibenzylthiophene,"Q. Gao (presenter), C. T. Williams and K. Segawa, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2009.
56. Talk - "Synthesis and Characterization of Au-Bimetallic Catalysts Prepared by Electroless Deposition Methods," J. Rebelli (presenter), J. H. Montoya, M. Detwiler, C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Nashville, TN, November 2009.
57. Talk - "Dendrimer-Derived Bimetallic Catalysts for Liquid-Phase Hydrogenation Reactions," Y. M. López-De Jesús (presenter), D. Liu and C. T. Williams, AIChE Annual Meeting, Nashville, TN, November 2009
58. Poster - "In-Situ ATR-IR Spectroscopic Investigation of Chirally-Modified Pd/Al_2O_3 for Enantioselective C=C Bond Hydrogenation," X. Sun (presenter), S. Tan (presenter), G. Hu, and C. T. Williams, AIChE Annual Meeting, Nashville, TN, November 2009.
59. Talk – "The Effect of Ni Promoter and Chelating Reagent for the Preparation of Highly Active Ni-MoS_2/g-Al_2O_3 HDS Catalysts," Q. Gao (presenter), V. G. Komvokis, C. T. Williams, and K. Segawa, TOCAT6/APCAT5, Tokyo, Japan, July, 2010
60. Talk - "The Effect of Ni Promoter and Chelating Reagent on the Preparation, Structure and Performance of Molybdenum-Based HDS Catalysts", Q. Gao (presenter), T. N. K. Ofosu, S. Ma, V. G. Komvokis, C. T. Williams, and K. Segawa, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2010.
61. Talk - "Synthesis and Evaluation of Group IB-Pd/SiO2 Bimetallic Catalysts, Prepared by Electroless Deposition Methods", J. Rebelli (presenter), S. Abbaspour, A. Rodriguez, C. T. Williams and J. R. Monnier, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2010.
62. Talk – "Synthesis and Evaluation of Au-Pd/SiO_2 Bimetallic Catalysts Prepared Using Electroless Deposition Method," J. Rebelli (presenter), S. Abbaspour, A. Rodriguez, C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Salt Lake City, UT, November 2010.
63. Talk - "Effect of Mg/Al Atom Ratio on Catalytic Performance of Pt/MgO-Al_2O_3 Catalyst in Acetonitrile Hydrogenation," C. Poupin (presenter), L. Pirault-Roy, R. Maache, R. Brahmi, C. Kappenstein and C. T. Williams, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
64. Poster - "A Spectroscopic and Kinetic Study of Asymmetric Hydrogenation of α, β-Unsaturated Carboxylic Acid and Cinchonidine on Pd/Al_2O_3 Surface," S. Tan (presenter) and C. T. Williams, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
65. Poster – "Effect of pH Control in Liquid Phase Glycerol Oxidation Reactions," J. Rebelli, A. A. Rodriguez, C. T. Williams and J. R. Monnier, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
66. Poster – "Synthesis of Dendrimer-Derived Supported Ir-Au Bimetallic Catalysts," Y.-J. Song, Y. M. López-De Jesús and C. T. Williams, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
67. Poster – "In-situ Investigation of Prochiral C=C Bond Hydrogenation in Methylcinnamic Acid," X. Sun and C. T. Williams, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
68. Poster – "Effects of Ni Promotion and Chelating Reagent on the Preparation, Structure and Performance of Molybdenum-based HDS Catalysts," Q. Gao (presenter), V. G. Komvokis, C. T. Williams, and K. Segawa, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
69. Talk - "Asymmetric hydrogenation of α, β-unsaturated carboxylic acid over cinchona-modified Pd catalyst", S. Tan (presenter) and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2011.
70. Poster – "Unsupported NiMoW Sulfide Catalysts Prepared by Thermal Decomposition of Thiosalts for Hydrodesulfurization of Dibenzothiophene," Y. Yi (presenter), C. T. Williams, G. Xiong and C. Liang, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2011.
71. Talk – "Enantioselective Hydrogenation of α, β-Unsaturated Carboxylic Acid Over Cinchona-Modified Pd/Al_2O_3: a Spectroscopic and Kinetic Study," S. Tan (presenter) and C. T. Williams, AIChE Annual Meeting, Minneapolis, MN, October 2011.
72. Talk – "Preparation, Characterization and Evaluation of Group IB-Pd Bimetallic Catalysts Prepared by Electroless Deposition," Y. Zhang (presenter), J. Rebelli, C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Minneapolis, MN, October 2011.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

73. Talk – "Kinetic Study of Asymmetric Hydrogenation of α, β-Unsaturated Carboxylic Acid over Cinchona-Modified Pd/Al_2O_3 Catalyst," S. Tan, J. R. Monnier, and C. T. Williams, 24th Organic Reactions Catalysis Society Meeting, Annapolis, MD, April 2012.
74. Poster – "Alumina Supported Ir-Ag Bimetallic Catalysts by Electroless Deposition for CO Oxidation," Y.-J. Song (presenter), J. R. Monnier and C. T. Williams, Southeastern Catalysis Society Mtg., Asheville, NC, Sept., 2012.
75. Talk – "Selective Liquid Phase Oxidation of Glycerol Using (Group I-B)-Pd Bimetallic Catalysts Prepared by Electroless Deposition Method," A. A. Rodriguez (presenter), C. T. Williams, and J. R. Monnier, AIChE Annual Meeting, Pittsburgh, PA, October 2012.
76. Talk – "Catalytic Hydrodeoxygenation of Propionic Acid Over Supported Monometallic Palladium: A Study of the Support Effects," Y. K. Lugo-Jose (presenter), J. R. Monnier and C. T. Williams, AIChE Annual Meeting, Pittsburgh, PA, October 2012.
77. Talk – "Preparation of Alumina Supported Ir-Ag Bimetallic Catalysts by Electroless Deposition," Y.-J. Song (presenter), J. R. Monnier, P. T. Fanson and C. T. Williams, AIChE Annual Mtg., Pittsburgh, PA, October 2012.
78. Poster - "Catalytic Hydrodeoxygenation of Propionic Acid over Supported Group VIII Noble Metals" Y. K. Lugo-Jose (presenter), J. R. Monnier and C. T. Williams, 23rd North American Catalysis Society Meeting, Louisville, KY, June, 2013.
79. Talk – "Oxidation of Acohols, Diols, and Polyols Using Au-Pd/C Bimetallic Catalysts Prepared by Electroless Deposition" A. A. Rodriguez (presenter), M. B. Griffin, J. W. Medlin, J. R. Monnier and C. T. Williams, 23rd North American Catalysis Society Meeting, Louisville, KY, June, 2013.
80. Talk – "Selective Hydrogenation of Acetylene in Excess Ethylene Using Group IB-Pd Bimetallic Catalysts Prepared by Electroless Deposition" Y. Zhang (presenter), C. T. Williams and J. R. Monnier, 23rd North American Catalysis Society Meeting, Louisville, KY, June, 2013.
81. Poster - "Catalytic Hydrodeoxygenation of Propionic Acid over Supported Group VIII Noble Metals" Y. K. Lugo-Jose (presenter), J. R. Monnier and C. T. Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2013.
82. Talk – "Use of Supported Group IB-Pd Bimetallic Catalysts Prepared By Electroless Deposition for the Selective Hydrogenation of Acetylene and 1,3-Butadiene," Y. Zhang (presenter), C. T. Williams and J. R. Monnier, AIChE Annual Meeting, San Francisco, CA, November 2013.
83. Talk - "Kinetics Studies On the Hydrodeoxygenation of Propionic Acid Over Supported Monometallic and Bimetallic Catalysts" Y. K. Lugo-Jose (presenter), J. R. Monnier and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2013.
84. Poster – Gas-Phase Hydrodeoxygenation of Propanoic Acid over Supported Palladium: Reaction Kinetics and the Effect of Particle Size," Y. K. Lugo-Jose (presenter), J. R. Monnier, C. T. Williams, 25th Organic Reactions Catalysis Society Meeting, Tucson, AZ, March 2014.
85. Poster – "Pd-Ag/SiO_2 Bimetallic Catalysts Prepared by Galvanic Displacement for Selective Hydrogenation of Acetylene in Excess Ethylene," Y. Zhang (presenter), C. T. Williams, and J. R. Monnier, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2014
86. Talk – "Preparation of Pd-Ag/SiO_2 Bimetallic Catalysts By Galvanic Displacement," Y. Zhang (presenter), C. T. Williams, and J. R. Monnier, 24th North American Catalysis Society Meeting, Pittsburgh, PA, June, 2015.
87. Poster – "Catalytic Hydrodeoxygenation (HDO) of Carboxylic Acids over Carbon-Supported Metals," J. L. Contreras-Mora (presenter), C. T. Williams, J. R. Monnier, and Y. K. Lugo-Jose, 24th North American Catalysis Society Meeting, Pittsburgh, PA, June, 2015.
88. Talk – "Catalytic Hydrodeoxygenation (HDO) of Acetic Acids over Carbon-Supported Metals," J. L. Contreras-Mora (presenter), J. R. Monnier, C. T. Williams, Southeastern Catalysis Society Meeting, Clemson, SC, September 2015.
88. Talk – "Pd-Ag/SiO_2 Bimetallic Catalysts Prepared By Galvanic Displacement for Selective Hydrogenation of Acetylene in Excess Ethylene," Y. Zhang (presenter), C. T. Williams, and J. R. Monnier, AIChE Annual Meeting, Salt Lake City, UT, November, 2015.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

89. Talk – "Catalytic Hydrodeoxygenation (HDO) of Acetic Acid over Carbon-Supported Metals," J. L. Contreras-Mora (presenter), J. R. Monnier, C. T. Williams, AIChE Annual Meeting, Salt Lake City, UT, November, 2015.
90. Poster – "Evaluation and Characterization of Carbon-Supported Nobel Metals for the Hydrodeoxygenation (HDO) of Acetic Acid," J. L. Contreras-Mora (presenter), J. Monnier and C. T. Williams, Novel Catalysts for Energy and Environmental Issues – a Pre-Symposium of the 16th International Congress on Catalysis and 2nd International Symposium of Institute of Catalysis, Sapporo, Hokkaido, Japan, July 2016.
91. Talk – "Evaluation and Characterization of Carbon-Supported Nobel Metals for the Hydrodeoxygenation (HDO) of Acetic Acid," J. L. Contreras-Mora (presenter), J. Monnier and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2016.
92. Poster – "Ni_2P Stability: Defects, Phosphorous Diffusion and their Effect on Local Structures," Contreras-Mora (presenter), H. Ariga, K. Asakura and C. T. Williams 25th North American Catalysis Society Meeting, Denver Colorado, June 2017.
93. Talk – "Enhanced Ethanol Selectivity, Activity and Stability for the Catalytic HDO of Acetic Acid Using Sn-Pt/C and Sn-Ru/C at Mild Conditions," J. L. Contreras-Mora (presenter), S. G. Karakalos, K. Patel and C. T. Williams, Organics Reactions Catalysis Society in San Diego, CA, April 2018.
94. Poster - "Rational Synthesis of Catalysts for Selective Oxidation of Hydrocarbons," A. Shakouri (presenter) N. Wakdikar, G. Neethling, C. T. Williams and R. D. Adams, 26th North American Catalysis Society Meeting, Chicago, IL, June 2019.
95. Poster – "Spectroscopic and Reaction Study on the Conversion of Dimethyl Oxalate to Ethylene Glycol on Silica Supported Copper Catalysts," X. Yu (presenter) and C. T. Williams, 26th North American Catalysis Society Meeting, Chicago, IL, June 2019.
96. Poster – "Hydrogenation of Dimethyl Oxalate to Ethylene Glycol over Mesoporous Silica Supported Copper Catalysts," X. Yu (presenter) and C. T. Williams, AIChE Annual Meeting, Orlando, FL, November 2019.
97. Talk - "Silica Supported Dilute Limit Alloy Nanoparticles by Strong Electrostatic Adsorption," L. De Castro (presenter), A. Dong, A. Shakouri, C. T. Williams and J.R. Regalbuto Southeastern Catalysis Society, 18th Annual Fall Symposium, Knoxville, TN, September 2019.
98. Talk - "Infrared Diagnosis of Dilute Limit Alloy Bimetallic Catalysts," L. De Castro (presenter), D. Sahsah, C. T. Williams, A. Heyden, and J. R. Regalbuto, 19th Annual Southeastern Catalysis Society Symposium, Virtual, September 2020.
99. Talk – "CO-FTIR Diagnosis of Atomic Isolation in Dilute Limit Alloy Catalysts," L. T. De Castro (presenter), C. T. Williams and J. R. Regalbuto, AIChE Virtual Annual Meeting, November 2020.
100. Talk – "Simultaneous Strong Electrostatic Adsorption (co-SEA) for the Facile Synthesis of Supported, Dilute Limit Alloy Bimetallic Catalysts," L. De Castro (presenter), C. T. Williams, J.R. Regalbuto, ACS National Meeting, Atlanta, GA, August 2021.
101. Talk - "Chelate Fixation to Produce High Densities of Supported Single-Atom Catalysts," A. Shakouri (presenter), H. Adabi Firouzjaie, S. Karakalos, W. Mustain, C. T. Williams and J. R. Regalbuto, ACS National Meeting, Atlanta, GA, August 2021.
102. Talk – ""Method to Produce High Densities of Isolated Atoms Regardless of the Support Functional Groups," A. Shakouri (presenter), H. Adabi Firouzjaie, S. Karakalos, W. Mustain, C. T. Williams and J. R. Regalbuto, AIChE Annual Virtual Meeting, Boston, MA, November 2021.
103. Talk – "Aqueous Phase Hydrogenation of Furfural Using Silica Supported Ultrasmall Bimetallic Catalysts," De L. Castro (presenter), C. T. Williams, J. R. Regalbuto, AIChE Annual Virt. Mtg, Boston, MA, November 2021.
104. Talk- "Catalytic Hydrogenation of Dimethyl Oxalate using Silver Monometallic and Silver Bimetallic Catalysts." Nicolas Gleason-Boure (presenter) C.T. Williams, Southeastern Catalysis Society, Atlanta, GA, February 2022.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT.)*

Contributed – presented by graduate students supervised by CTW (cont.)

105. Poster-"Hydrogenation of Dimethyl Oxalate to Ethylene Glycol using Silver and Copper-Based Catalysts on Various Supports" Nicolas Gleason-Boure (presenter) C.T. Williams, North American Catalysis Society Meeting, New York City, NY, May 2022.
106. Poster - "CO-FTIR Diagnosis of Dilute Limit Alloy Bimetallic Catalysts," L. De Castro (presenter), D. Sahsah, A. Heyden, C. T. Williams and J. R. Regalbuto, 27th North American Catalysis Society Meeting, New York, NY, May 2022.
107. Talk - "Aqueous Phase Furfural Hydrogenation Using Dilute Limit Alloy Bimetallic Catalysts," L. De Castro (presenter), C. T. Williams and J. R. Regalbuto, 27th North American Catalysis Society Meeting, New York, NY, May 2022.
108. Talk- "Optimizing Silver-Based Bimetallic Catalysts for the Selective Reduction of Dimethyl Oxalate to Ethylene Glycol" Nicolas Gleason-Boure (presenter) C.T. Williams, Organic Reactions Catalysis Society Meeting, Jacksonville, FL, October, 2022.

Contributed – presented by undergraduate students supervised by CTW

1. Poster - "Synthesis and Characterization of Metallic, Nanoscale Catalysts," N. Dygert (presenter) and C. T. Williams, AIChE Annual Meeting, AIChE Annual Meeting, Indianapolis, IN, November, 2002
2. Poster - "Self-Assembly and Characterization of Dendrimer-Stabilized Metal Nanoparticles on Gold," J. P. Angelos (presenter) and C. T. Williams, AIChE Southern Regional Conference, Melbourne, FL, March, 2003.
3. Poster - "*In Situ* Investigation of Aldehyde Adsorption and Dissociation on Pd/Al_2O_3 Catalyst using Attenuated Total Reflection Infrared Spectroscopy," D. Jason Owens (presenter) and C. T. Williams, AIChE Southern Regional Conference, Melbourne, FL, March, 2003.
4. Poster - "Synthesis of Pt-Pd Bimetallic Catalysts using Dendrimer-Stabilized Nanoparticles," M. D. Casper (presenter) and C. T. Williams, AIChE Southern Regional Conference, Melbourne, FL, March, 2003.
5. Poster (1st place prize in Catalysis and Reaction Engineering Division) - "Synthesis of Pt-Pd Bimetallic Catalysts using Dendrimer-Stabilized Nanoparticles," M. D. Casper (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
6. Poster (2nd place prize in Materials Engineering and Sciences Division) - "Self-Assembly and Characterization of Dendrimer-Stabilized Metal Nanoparticles on Gold," J. P. Angelos (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
7. Poster (3rd place prize in Catalysis and Reaction Engineering Division) - "*In Situ* Investigation of Aldehyde Adsorption and Dissociation on Pd/Al_2O_3 and Pt/Al_2O_3 Catalysts using Attenuated Total Reflection Infrared Spectroscopy," D. J. Owens (presenter) and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
8. Talk - "Synthesis of Pt-Pd Bimetallic Catalysts using Dendrimer-Stabilized Nanoparticles," M. D. Casper (presenter) and C. T. Williams, AIChE Regional Meeting, Atlanta, GA, March, 2004.
9. Talk - "*In Situ* Investigation of Aldehyde Adsorption and Dissociation on Pd/Al_2O_3 and Pt/Al_2O_3 Catalysts using Attenuated Total Reflection Infrared Spectroscopy," D. J. Owens (presenter) and C. T. Williams, AIChE Regional Meeting, Atlanta, GA, March, 2004.
10. Poster – "Thermal Decomposition of Generation-4 Polyamidoamine Dendrimer Films", K. Pizzolato (presenter) O. Ozturk, T. J. Black, F. Parsons, J. Ratliff, K. Perrine, C. T. Williams and D. A. Chen, AIChE Annual Meeting, Austin, TX, November, 2004.
11. Poster (2nd place prize in Catalysis and Reaction Engineering Division) - "Synthesis of Copper-Palladium Bimetallic Catalysts using Electroless Deposition", A. Y. Metcalf (presenter), C. C. Stork, J. R. Monnier, and C. T. Williams, AIChE Annual Meeting, Austin, TX, November, 2004.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT)*

Contributed – presented by undergraduate students supervised by CTW (cont.)

12. Poster - "Investigation of Acetonitrile Adsorption on a Model Support by Method of Sum Frequency Spectroscopy," J. A. Smith (presenter), S. B. Waldrup, and C. T. Williams, AIChE Annual Meeting, Cincinnati, OH, November 2005.
13. Poster - "Preparation of Silver-Platinum Bimetallic Catalysts Via Electroless Deposition," A. C. Pickerell (presenter), M. T. Schaal, C. T. Hoang, J. R. Monnier, and C. T. Williams, AIChE Annual Meeting, Cincinnati, OH, November 2005.
14. Poster – "Synthesis of Dendrimer-Derived Supported Iridium Catalysts," L. Jimenez-Padua (presenter), Y. M. López-De Jesús, and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November 2006.
15. Poster - "On the Mechanism of $NaBH_4$ Hydrolysis: Raman Spectra of Solid Species," H. S. Marsh (presenter), A. M. Beaird, M. A. Matthews, C. T. Williams and E. Y. Marrero-Alfonso, AIChE Annual Meeting, Philadelphia, PA, November 2008
16. Poster - "Study of Isopropanol Oxidation On Au-Pd/SiO_2 Catalysts Using Temperature Programmed Techniques," J. Javier-Navarro (presenter), J. Rebelli, C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Nashville, TN, November 2009
17. Poster - "Synthesis and Characterization of Gold-Platinum Bimetallic Catalyst Prepared by Electroless Deposition Method," A. A. Rodriguez-Vaquez (presenter), J. Rebelli, C. T. Williams and J. R. Monnier, AIChE Annual Meeting, Nashville, TN, November 2009
18. Poster - "Spectroscopic Characterization of Adsorbed Carbon Monoxide on Supported Isolated, Single Atom Catalysts," J. Piorkowski (presenter) and C. T. Williams, AIChE Annual Student Meeting, Phoenix, AZ, November 2022.

Other – presented by research collaborator of CTW

1. Talk - "Dendrimer Stabilized Nanoparticles for Next-Generation Catalysts," D. S. Deutsch (presenter), D. Liu, D. Altomare, H. Lang, B. Chandler, C. T. Williams, P. B. Balbuena, and M. D. Amiridis, AIChE Annual Meeting, Indianapolis, IN, November, 2002.
2. Talk – "Undergraduate Research: Enhancing Education with the Research Communications Studio," M. A. Matthews (presenter), E. Alford, N. Thompson and C. T. Williams, AIChE Annual Meeting, San Francisco, CA, November, 2003.
3. Talk – "Dendrimer-Based Routes to Metallic and Bimetallic Nanoparticles for Next Generation Catalysts and Reactor Systems", H. J. Ploehn (presenter), M. D. Amiridis, P. B. Balbuena, D. A. Chen, J. Ferry, C. J. Murphy, and C. T. Williams, AIChE Annual Meeting, Austin, TX, November, 2004.
4. Talk - "Characterization of Dendrimer-Derived Supported Metal Nanoparticles," D. S. Deutsch (presenter), A. Siani, O. S. Alexeev, C. T. Williams, and M. D. Amiridis, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2005.
5. Talk - "Characterization of Dendrimer-Derived Supported Metal Nanoparticles," D. S. Deutsch (presenter), A. Siani, O. S. Alexeev, C. T. Williams, and M. D. Amiridis, AIChE Annual Meeting, Cincinnati, OH, November 2005.
6. Poster - "Microscopic Characterization of Dendrimer-Derived Bimetallic Pt-Cu Catalysts", H. Xie, D. Liu, C. T. Williams, H. J. Ploehn, J. Y. Howe (presenter), Microscopy & Microanalysis 2006 Meeting of the Microscopy Society of America, Chicago, IL, July 2006.
7. Talk – "A Flexible Chemical Engineering Curriculum," C. T. Williams and F. Gadala-Maria (presenter), AIChE Annual Meeting, San Francisco, CA, November 2006.
8. Talk – "EXAFS Characterization of Pt/Dendrimer Nanocomposites Used for the Preparation of Pt/Al_2O_3 Catalysts," A. Siani, O. S. Alexeev (presenter), C. T. Williams, H. J. Ploehn, M. D. Amiridis, AIChE Annual Meeting, San Francisco, CA, November 2006.
9. Talk – "PAMAM Dendrimers as Templates for the Preparation of Supported Pt and Rh Catalysts," A. Siani, D. S. Deutsch, O. S. Alexeev, G. Lafaye, P. T. Fanson, H. Hirata, S. Matsumoto, H. J. Ploehn, C. T. Williams, Amiridis, M. D (presenter), North American Catalysis Society Meeting, Houston, TX, June 2007.

PRESENTATIONS - *TECHNICAL MEETINGS (CONT)*

Other – presented by research collaborator of CTW (cont.)

10. Poster - "*In situ* FTIR spectroscopic studies on the mechanism of limonene epoxidation over PW-Amberlite catalyst" Rolando Barrera Zapata, Aída Luz Villa, Consuelo Montes de Correa (presenter), Christopher Williams, Southeastern Catalysis Society Meeting, Asheville, NC, September, 2008.
11. Talk - "Characterizing and designing bimetallic catalysts for selective reductions of oxygenates," J. W. Medlin (presenter), M. P. Hyman, M. T. Schaal, J. R. Monnier, C. T. Williams and S. Ma, ACS Spring National Meeting, Salt Lake City, UT, March, 2009
12. Talk – "Use of Electroless Deposition Methods to Prepare Novel Bimetallic Catalysts," J. R. Monnier (presenter), M. T. Schaal, K. D. Beard, J. Rebelli, C. T. Williams and J. W. Van Zee, North American Catalysis Society Meeting, San Francisco, CA, June 2009.
13. Poster – "In-Situ ATR Studies of the Mechanism of Limonene Epoxidation over PW-Amberlite," R. B. Zapata , Chemical, A. Luz Villa , C. Montes de Correa (presenter) and C. T. Williams, North American Catalysis Society Meeting, San Francisco, CA, June 2009.
14. Talk - "Effect of chelatants on the sulfidation of NiMo/alumina catalysts," K. Segawa (presenter), C. T. Williams and Q. Gao, ACS Fall National Meeting, Washington, DC, August 2009.
15. Talk - "In Situ ATR-IR Studies On the Mechanism of Limonene Epoxidation Over PW-Amberlite," R. Barrera (presenter), A. Luz Villa, C. Montes de Correa, C. T. Williams, AIChE Annual Meeting, Nashville, TN, November 2009
16. Talk – "Preparation, characterization, and evaluation of silica-supported, Group IB-Pd bimetallic catalysts prepared by electroless deposition methods," J. R. Monnier (presenter), J. Rebelli, A. A. Rodriguez, S. Abbaspour, S. Ma, and C. T. Williams, 22nd North American Catalysis Society Meeting, Detroit, MI, June, 2011.
17. Talk – "Unsupported NiMoW Sulfide Catalysts Prepared by Thermal Decomposition of Thiosalts for Hydrodesulfurization of Dibenzothiophene," Y. Yi (presenter), C. T. Williams, G. Xiong and C. Liang, AIChE Annual Meeting, Minneapolis, MN, October 2011.
18. Talk – "Preparation of Alumina Supported Ag-Ir Bimetallic Catalysts by Electroless Deposition for CO Oxidation" Y.-J. Song, J. R. Monnier (presenter), P. T. Fanson and C. T. Williams, 23rd North American Catalysis Society Meeting, Louisville, KY, June, 2013.
19. Talk – "A Systematic Study of Alkali and Alkaline Earth Metal Promotion of Alumina Supported Ruthenium for Levulinic Acid Hydrogenation to Gamma-Valerolactone," S. Cao, C. T. Williams, S. Ma, J. R. Monnier, and J. R. Regalbuto, 24th North American Catalysis Society Meeting, Pittsburgh, PA, June, 2015.
20. Talk - "Selective Hydrogenation of Cinnamaldehyde over a Bimetallic Single Atom Catalyst Synthesized Via Chelate Fixation Participants," B. Vakili (presenter), S. Oruji, A. Shakouri, J. R. Regalbuto and C. T. Williams, AIChE Annual Meeting, Phoenix, AZ, November 2022.
21. Talk - "Optimization of Aqueous Phase Furfural Hydrogenation Using Pd1Ni Dilute Limit Alloy Catalysts," M. F. Patwary (presenter), L. De Castro, C. T. Williams and J. R. Regalbuto, AIChE Annual Student Meeting, Phoenix, AZ, November 2022.
22. Talk - "Simple, Fast, and Scalable Atomically Controlled Synthesis of Heterogeneous Catalysts," A. Shakouri, H. A. Firouzjaie, S. G. Karakalos, C. T. Williams and J. R. Regalbuto (presenter), AIChE Annual Student Meeting, Phoenix, AZ, November 2022.
23. Talk - "Exploration of Novel Catalysts for Ammonia Synthesis: Creating a More Efficient Pathway," S. Drummond (presenter), J. Naglic, C. T. Williams and J. Lauterbach, AIChE Annual Student Meeting, Phoenix, AZ, November 2022.
24. Talk - "Low Temperature and Pressure Ammonia Synthesis Via Highly Dispersed Ruthenium Based Catalysts," J. Naglic (presenter), S. Drummond, A. Shakouri, C. T. Williams and J. Lauterbach, AIChE Annual Student Meeting, Phoenix, AZ, November 2022.
25. Talk - "From Deposited Metal Precursors to Supported Atoms or Nanoparticles," A. Shakouri, C. T. Williams and J.R. Regalbuto (Presenter/Keynote), 28th North American Catalysis Society Meeting, Providence, RI, June 2023.

PRESENTATIONS – *INVITED SEMINARS*

Academic

1. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Real-Time Probe of Heterogeneous Catalytic Reactions at High Gas Pressures," C. T. Williams, (invited as a result of receiving the departmental Research Excellence Award), School of Chemical Engineering, Purdue University, West Lafayette, IN, March, 1997.
2. "Surface-Enhanced Raman Spectroscopy as an *In-Situ* Probe of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical Engineering, The Ohio State University, Columbus, OH, February, 1998.
3. "New Prospects for *In-Situ* Investigation of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical Engineering, University of South Carolina, Columbia, SC, January, 1999.
4. "New Prospects for *In-Situ* Investigation of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical and Petroleum Engineering, University of Pittsburgh, Pittsburgh, PA, February, 1999.
5. "New Prospects for *In-Situ* Investigation of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical Engineering, University of Kansas, Lawrence, KA, March, 1999.
6. "New Prospects for *In-Situ* Investigation of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical Engineering, Columbia University, New York, NY, March, 1999.
7. "New Prospects for *In-Situ* Investigation of Heterogeneous Catalytic Reactions," C. T. Williams, Department of Chemical Engineering, Penn State University, University Park, PA, March, 1999.
8. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemistry, Miami University, Oxford, OH, July, 2003.
9. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, North Carolina State University, Rayleigh, NC, October, 2003.
10. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Center for Catalysis and Surface Science and Institute for Environmental Catalysis, Northwestern University, Evanston, IL, October, 2003.
11. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, Clemson University, Clemson, SC, December, 2003.
12. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Surface Science and Catalysis Group, University of California at Berkeley, Berkeley, CA, April, 2004.
13. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA, September, 2004.
14. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, University of Delaware, Newark, DE, November, 2004.
15. "Dendrimer-Stabilized Nanoparticles for Synthesis of Controlled-Structure Supported Metal Catalysts," C. T. Williams, Department of Chemical Engineering, University of Puerto Rico, Mayaguez, PR, October, 2005.
16. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, University of Osaka, Osaka, Japan, December, 2005.
17. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, American Society for Metals – Oak Ridge Chapter, Educational Symposium: Catalysis, Oak Ridge, TN, April, 2006.
18. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemistry, University of Tokyo, Tokyo, Japan, October 2006.
19. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Chemical Resources Laboratory, Tokyo Institute of Technology, Yokohama, Japan, October 2006.
20. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemistry and CNRS, University of Poitiers, Poitiers, France, May 2007.
21. "Dendrimer-Metal Nanocomposites for Synthesis of Controlled-Structure Supported Metal Catalysts," C. T. Williams, Institute for Chemical and Bio-Engineering, ETH, Zurich, Switzerland, June 2007.
22. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, University of Notre Dame, South Bend, IN, October 2007.

PRESENTATIONS – *INVITED SEMINARS (CONT.)*

Academic (cont.)

23. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering, State Key Laboratory for Physical Chemistry of Solid Surfaces and Department of Chemistry, Xiamen University, Xiamen, Fujian, China, July 2008.
24. "Bridging the 'Liquid Gap': In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Division of Applied Chemistry and Biotechnology, Chiba University, Chiba, Japan, July 2008.
25. "Dendrimer-Metal Nanocomposites as Precursors for Supported Metal Catalysts: Progress and Prospects," C. T. Williams, Department of Chemical Engineering, University of Osaka, Osaka, Japan, July 2008.
26. "Dendrimer-Metal Nanocomposites for Synthesis of Controlled-Structure Supported Metal Catalysts," C. T. Williams, Department of Chemical Engineering and State Key Laboratory for Fine Chemicals, Dalian University of Technology, Dalian, Liaoning, China, May 2009.
27. "Bimetallic Supported Catalysts Prepared using Electroless Deposition Methods," C. T. Williams, Department of Chemical Engineering and State Key Laboratory for Fine Chemicals, Dalian University of Technology, Dalian, Liaoning, China, May 2009.
28. "Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemical Engineering and State Key Laboratory for Fine Chemicals, Dalian University of Technology, Dalian, Liaoning, China, May 2009.
29. "Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, Department of Chemistry and State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, China, May 2010.
30. "Viewing the Solid Catalyst-Liquid Interface with Attenuated Total Reflection Infrared Spectroscopy," C. T. Williams, Department of Chemical Engineering, Tianjin University, Tianjin, China, September 2013.
31. "Controlled-Structure Supported Bimetallic Catalysts Prepared by Dendrimer-Metal Nanocomposites and Electroless Deposition Methods," C. T. Williams, Department of Chemical Engineering, Dalian University of Technology – Panjin Campus, Panjin, Liaoning, China, September 2013.
32. "Viewing the Solid Catalyst-Liquid Interface with Attenuated Total Reflection Infrared Spectroscopy," C. T. Williams, State Key Laboratory for Physical Chemistry o Solid Surfaces, Xiamen University, Xiamen, Fujian, China, November 2013.
33. "Bimetallic Supported Catalysts Prepared Using Electroless Deposition Methods: A Precise Method for Exploring Structure-Property Relationships" C. T. Williams, State Key Laboratory for Physical Chemistry o Solid Surfaces, Xiamen University, Xiamen, Fujian, China, January 2014.
34. "Dendrimer-Metal Nanocomposites for Synthesis of Controlled-Structure Supported Metal Catalysts" C. T. Williams, State Key Laboratory for Physical Chemistry of Solid Surfaces, Xiamen University, Xiamen, Fujian, China, January 2014.

Industrial

1. "Bridging the Liquid Gap: In-Situ Vibrational Spectroscopy of Solid-Liquid Catalytic Interfaces," C. T. Williams, ExxonMobil Research and Engineering Company, Annandale, NJ, June 2008.

FUNDING – *FUNDAMENTAL RESEARCH*

Principal Investigator (specific amounts for CTW indicated)

1. South Carolina Commission on Higher Education, "Investigation of Novel Heterogeneous Catalytic Routes for the Production of Pharmaceuticals," $97,209, 01/01/00-12/31/00, C. T. Williams (PI@$58,000) and M. D. Amiridis (co-PI)
2. USC Spons. Programs and Research, "Development of Model Supported-Metal Catalysts for In-Situ Vibrational Spectroscopic Investigations of Heterogeneous Catalysis," $15,000, 01/01/00-12/31/00, C. T. Williams (PI)
3. Petroleum Research Fund, "In-Situ Vibrational Spectroscopic Investigation of Heterogeneous Asymmetric Hydrogenation on Model Supported Catalysts," $25,000, 09/01/00-08/31/02, C.T. Williams (PI)

FUNDING – *FUNDAMENTAL RESEARCH (CONT.)*

Principal Investigator (specific amounts for CTW indicated) (cont.)

4. NSF CAREER Award, "Investigations of Catalysis at Solid-Liquid Interfaces by Non-Linear Optical Spectroscopy," $391,000 (including REU supplements), 2/01/01-1/31/06, C. T. Williams (PI)
5. USC Nanocenter Seed Grant, "Preparation of Novel Nanoscale Bimetallic Catalysts Using Electroless Deposition Methods," $20,000, 3/15/04 – 3/14/05, C. T. Williams (PI@$10,000), J. R. Monnier (co-PI).
6. NSF, "Operando Vibrational Spectroscopic Investigation of Heterogeneous Asymmetric Hydrogenation on Transition Metal Catalysts," $300,000, 9/01/07-8/31/11, C. T. Williams (PI).
7. BP Oil International Limited, "Scoping Study of the Fuel/Additive/Iron Interface," $39,956, 9/01/07-2/29/08, C. T. Williams (PI).
8. UOP, "Strategies For the Production of Sulfur Free Fuels: Effect of Chelating Reagent on the Sulfidation of NiMo Catalysts," $81,794, 4/01/08-3/31/09, C. T. Williams (PI@$65,000), K. Segawa (co-PI).
9. NSF, "REU Supplement: Operando Vibrational Spectroscopic Investigation of Heterogeneous Asymmetric Hydrogenation on Transition Metal Catalysts" $8,000, 6/01/08 – 8/31/11, C. T. Williams (PI).
10. NSF, "Graduate Research Supplement: Operando Vibrational Spectroscopic Investigation of Heterogeneous Asymmetric Hydrogenation on Transition Metal Catalysts" $38,800, 9/01/08 – 8/31/11, C. T. Williams (PI).
11 Toyota, "Synthesis and Characterization of Supported Metal Catalysts for Automotive Applications," $163,799, 11/01/08-02/28/10, C. T. Williams (PI@)$111,000), M. D. Amiridis (co-PI).
12. NSF, "REU Supplement: Operando Vibrational Spectroscopic Investigation of Heterogeneous Asymmetric Hydrogenation on Transition Metal Catalysts" $6,000, 6/01/09 – 8/31/11, C. T. Williams (PI).
13. UOP, "Strategies For the Production of Sulfur Free Fuels: Effect of Chelating Reagent on the Sulfidation of NiMo Catalysts," $40,000, 12/01/09-11/30/10, C. T. Williams (PI@$40,000), K. Segawa (co-PI).
14. Toyota, "Synthesis and Characterization of Supported Metal Catalysts for Automotive Applications," $165,101, 3/01/10-02/28/11, C. T. Williams (PI@)$83,000), M. D. Amiridis (co-PI).
15. Toyota, "Synthesis and Characterization of Supported Metal Catalysts for Automotive Applications," $175,266, 3/01/11-02/28/12, C. T. Williams (PI@)$88,000), M. D. Amiridis (co-PI).
16. Toyota, "Synthesis and Characterization of Supported Metal Catalysts for Automotive Applications," $174,937, 3/01/12-02/28/13, C. T. Williams (PI@)$88,000), M. D. Amiridis (co-PI).
17. NSF, "Collaborative Research: Electrochemical Reduction of CO_2 to Small Organic Fuels on Encapsulated Metal Catalysts in Gas Diffusion Electrode Environment" $120,000, 9/01/12 – 8/31/15, C. T. Williams (PI).
18. SCUREF-SRNL, "Infrared Spectroscopic Study of Glycolic Acid in Aqueous Solutions Relevant to Nuclear Waste Treatment," $29,597, 12/03/14 – 12/02/15, C. T. Williams (PI).
19. NSF, "Selective Catalytic Conversion of Syngas-Derived Dimethyl Oxalate to Ethylene Glycol: Mechanistic Insights from In-Situ Surface Vibrational Spectroscopy," $348,172, 9/01/15 – 8/31/19, C. T. Williams (PI).
20. SCUREF-SRNL, "Infrared Spectroscopic Study of Glycolic Acid in Aqueous Solutions Relevant to Nuclear Waste Treatment," $101,988, 06/29/16 – 09/30/17, C. T. Williams (PI).
21. National Science Foundation, "I/UCRC: Project 23: Bimetallic Indium-Copper Catalysts for Hydrogenation of Syngas-Derived Dimethyl Oxalate to Ethylene Glycol," $54,000, 07/01/2019 – 10/31/2020, C. T. Williams (PI@~$36,000), J. R. Regalbuto (PI), B. F. Gupton (VCU, co-PI).
22. National Science Foundation, "I/UCRC: Project 35: Simple Synthesis of Supported Single Atom Catalysts via Chelate Fixation," $40,000, 01/01/2022 – 9/31/2023, C. T. Williams (PI@~$20,000), J. R. Regalbuto (PI), B. C. Gates (UC-Davis, co-PI).
23. National Science Foundation, "I/UCRC: Project 60: Simple Synthesis of Supported Single Atom Catalysts via Chelate Fixation," $56,000, 01/01/2024 – 12/31/2024, C. T. Williams (PI@~$28,000), J. R. Regalbuto (co-PI), B. F. Gupton (VCU, co-PI).

FUNDING – *FUNDAMENTAL RESEARCH (CONT.)*

Co-Principal/Senior Investigator (specific amounts for CTW indicated)

1. National Science Foundation NIRT Program, "Dendrimer-Stabilized Nanoparticles for Next Generation Catalysts," $2,000,000, 7/1/01-6/31/06, H. J. Ploehn (PI), C. T. Williams (Senior Investigator@$280,000), M. D. Amiridis (co-PI), P. B. Balbuena (Senior Investigator), C. J. Murphy (co-PI), D. A. Chen (Senior Investigator), J. L. Ferry (Senior Investigator).
2. NSF-I/UCRC Center for Fuel Cells at USC, "Catalysts for Impurity-free Hydrogen," $94,500, 1/01/03 – 12/31/05, C. T. Williams (co-PI@$47,250), M. D. Amiridis (co-PI).
3. Toyota, "Synthesis and Characterization of Supported Metal Catalysts for Automotive Applications," $563,656, 11/01/04-10/31/08, M. D. Amiridis (PI) and C. T. Williams (co-PI@$270,000).
4. National Science Foundation, "Collaborative Research: Tailoring Solid Catalysts for Selective Reaction of Multifunctional Molecules," $240,251 (including REU supplements), 9/01/05 – 8/31/09, J. R. Monnier (PI), C. T. Williams (co-PI@$121,000), J. W. Medlin (co-PI – U. Colorado, separate budget).
5. Center for Manufacturing and Technology of USC, "Preparation and Evaluation of Novel Bimetallic Catalysts for Catalytic Applications," $10,000, 11/01/05 - 4/30/06, J. R. Monnier (PI), C. T. Williams (co-PI@$5,000), Engelhard Corporation (industrial partner).
6. National Science Foundation, "GOALI: Collaborative Research: Phase Behavior and Reactivity of a Hygroscopic System," $335,693, 05/16/08 – 05/15/11, M. A. Matthews (PI), T. A. Davis, C. T. Williams (Senior Investigator@30,000).
7. National Science Foundation, "Collaborative Research: Preparation, Characterization,and Evaluation of Bimetallic Catalysts Using Electroless Deposition Methods for Selective Oxidation of Biomass-Related Alcohols," $329,888, 8/01/09 – 7/30/12, J. R. Monnier (PI), C. T. Williams (co-PI@$165,000).
8. National Science Foundation, "Complex Hydrides of Lithium, Aluminum and Boron for Hydrogen Storage," $300,000, 9/01/09 – 8/31/012, J. A. Ritter (PI), A. D. Ebner (co-PI), C. T. Williams (co-PI@$30,000).
9. USC Nanocenter/Future Fuels Initiative, "Seed Grant: Catalytic Liquid-Phase Deoxygenation of Biomass to Hydrocarbon Fuels for Transportation and Stationary Applications," $150,000, 8/16/09 – 8/15/10, C. T. Williams (co-PI@ $50,000), A. Heyden (co-PI@$50,000), F. Chen (co-PI@$50,000).
10. National Science Foundation, "Graduate Research Supplement: Collaborative Research: Preparation, Characterization,and Evaluation of Bimetallic Catalysts Using Electroless Deposition Methods for Selective Oxidation of Biomass-Related Alcohols," $40,050, 8/01/10 – 7/31/11, J. R. Monnier (PI), C. T. Williams (co-PI@$20,000).
11. National Science Foundation, "Graduate Research Supplement: Collaborative Research: Preparation, Characterization, and Evaluation of Bimetallic Catalysts Using Electroless Deposition Methods for Selective Oxidation of Biomass-Related Alcohols," $42,000, 8/01/11–7/31/12, J. R. Monnier (PI), C. T. Williams (co-PI@$21,000).
12. Office of Research APIRE-II Program, "Catalytic Conversion of Biomass-Derived Platform Molecules into High Octane Biofuels," $100,000, 05/15/2012-8/14/2013, A. Heyden (PI), C. T. Williams (co-PI@$33,000), R. D. Adams (co-PI).
13. National Science Foundation, "Rational Design of Selective Hydrodeoxygenation Catalysts for Organic Acids," $400,000, 8/15/12 – 8/14/15, A. Heyden (PI), C. T. Williams (co-PI@$200,000), J. R. Monnier.
14. National Science Foundation, "Collaborative Research: Planning Grant: I/UCRC for the Center for Rational Catalyst Synthesis," $14,500, 4/1/14 – 3/31/15, J. R. Regalbuto (PI), J. R. Monnier (co-PI), C. T. Williams (co-PI), B. F. Gupton (VCU, co-PI).
15. National Science Foundation, "Collaborative Research: I/UCRC Phase I: The Center for Rational Catalyst Synthesis," $779,875, 3/1/15 – 2/28/20, J. R. Regalbuto (PI), J. R. Monnier (co-PI), C. T. Williams (co-PI), B. F. Gupton (VCU, co-PI).
16. National Science Foundation, "I/UCRC: Project 3: Application of Solid-Supported Palladium Catalysts to Cross-Coupling and C–H Activation Reactions," $77,000, 01/01/2016 – 06/31/2017, C. T. Williams (co-PI@~$25,667) B. F. Gupton (VCU, co-PI), Keith C. Ellis (VCU, co-PI), M. Samy El-Shall (co-PI).

FUNDING – *FUNDAMENTAL RESEARCH (CONT.)*

Co-Principal/Senior Investigator (specific amounts for CTW indicated) (cont.)

17. National Science Foundation, "I/UCRC: Project 10: Catalytic Upgrading of Hydrocarbons by Selective Oxidation, $54,000, 7/1/17-6/30/18, C. T. Williams (co-PI@$18,000), R. D. Adams (PI), S. Khanna (VCU, co-PI).
18. National Science Foundation, "Collaborative Research: I/UCRC Phase II: The Center for Rational Catalyst Synthesis," $500,000, 03/01/2021 – 02/28/2025, J. R. Regalbuto (PI), J. R. Monnier (co-PI), C. T. Williams (co-PI), B. F. Gupton (VCU, co-PI).
19. National Science Foundation, "I/UCRC: Project 37: Bimetallic Single Atom Catalysts via Chelate Fixation for Selective Hydrogenation of α,β-Unsaturated Aldehydes," $60,000, 01/01/2022-12/31/2022, C. T. Williams (co-PI@$20,000), J.R. Regalbuto (PI), D. A. Chen (co-PI), H. El-Kaderi, (VCU, co-PI), B. F. Gupton (VCU, co-PI).
20. National Science Foundation, "I/UCRC: Project 46: Single Atom Catalysts via Switched Solvent Synthesis (SwiSS)/From Isolated Atoms to 2d-Raft Clusters via Switched Solvent Synthesis," $60,000, 01/01/2023 – 12/31/2023, C. T. Williams (PI@~$20,000), J. R. Regalbuto (PI), B. F. Gupton (VCU, co-PI).
21. National Science Foundation, "I/UCRC: Project 59: Bimetallic Single Atoms, Clusters, and Nanoparticles via Switched Solvent Chelate Enhanced Synthesis," $56,000, 01/01/2024 – 12/31/2024, J. R. Regalbuto (PI), C. T. Williams (co-PI@~$28,000), J. M. Tengco (co-PI).
22. National Science Foundation, "I/UCRC: Project 63: Navigating the Solvent Space of SwiSS," $56,000, 01/01/2024 – 12/31/2024, J. R. Regalbuto (PI), C. T. Williams (co-PI@~$14,000), J. R Monnier (co-PI, and J. B.F. Gupton (VCU, co-PI).

FUNDING – *APPLIED RESEARCH AND TESTING*

Principal Investigator (specific amounts for CTW indicated)

1. Center for Manufacturing and Technology of USC, "Raman and Optical Imaging of Composites Produced by Resin Transfer Molding," $14,984, 4/1/02-6/30/02, C. T. Williams (PI@$9,000), T. D. Papathanasiou (co-PI).
2. Directed Technologies, Inc., "Analysis of Carbon Deposition on Metal Surfaces," $30,000, 9/01/03 – 12/31/03, C. T. Williams (PI).
3. Kemira Finnchem, "Peroxide Manufacture in a PEM Fuel Cell Reactor," $30,000, 5/01/06 – 04/30/07, C. T. Williams (PI@$20,000), J. W. Weidner (co-PI).
4. Alstom Power Inc., "Testing of CO_2 Amine Interactions," $43,117, 6/01/08-12/31/08, C. T. Williams (PI).
5. Alstom Power Inc., "Testing of CO_2 Amine Interactions," $108,119, 1/01/09-11/30/09, C. T. Williams (PI).

FUNDING – *EQUIPMENT*

Co-Principal/Senior Investigator

1. Office of Research Support Programs of USC, "Acquisition of a Scanning Probe Microscopy System," $100,000 1/1/02-1/1/03, H. J. Ploehn (PI), C. T. Williams (co-PI), M. D. Amiridis (co-PI), P. B. Balbuena (co-PI), C. J. Murphy (co-PI), D. A. Chen (co-PI), J. L. Ferry (co-PI).
2. Office of Research Support Programs of USC, "Acquisition of a High-Performance Computer Cluster for the Design of Dendrimer-Based Nano-Catalysts," $33,160, 1/1/02-1/1/03, P. B. Balbuena (PI), C. T. Williams (co-PI), M. D. Amiridis (co-PI), H. J. Ploehn (co-PI), C. J. Murphy (co-PI), D. A. Chen (co-PI), J. L. Ferry (co-PI).
3. Office of Research Support Programs of USC, "Equipment to Expand the Capabilities of the High-Pressure Adsorption Laboratory: Development of Hydrogen Storage Materials and Systems," $60,000 1/1/02-1/1/03, J. A. Ritter (PI), C. T. Williams (co-PI).
4. National Science Foundation MRI Program, "Development of a 2-D Vibrational Spectrometer for Materials Characterization Based on NMR Analogs," $500,001, 8/1/02-7/31/04, M. A. Berg (PI), C. T. Williams (Senior Investigator, as user), U. Bunz (Senior Investigator), C. J. Murphy (Senior Investigator), K. Shimizu (Senior Investigator), M. Wyatt (Senior Investigator), H. zur Loye (Senior Investigator).
5. USC Nanocenter, "Catalysis Thrust Area Proposal, FY 2003-04," $55,000, 5/01/04-12/31/04, C. T. Williams (co-PI, lead author), H. J. Ploehn (co-PI).

FUNDING – *EDUCATIONAL/TRAINING*

Principal Investigator

1. National Science Foundation, "IGERT: Functional Nanomaterials for Sustainable Energy Solutions," $3,000,000, 09/01/13 – 08/31/19, C. T. Williams (PI), J. A. Lauterbach (co-PI), D. A. Chen (co-PI), W. R. Sandberg (co-PI).
2. National Science Foundation, "REU: CO_2 Chemical Engineering: Opportunities and Challenges," $413,036, 09/01/21 – 08/31/25, C. T. Williams (PI), J. A. Lauterbach (co-PI).

Co-Principal Investigator - Funded

1. National Science Foundation, "REU: Green Chemistry in Chemical Engineering," $284,932, 05/01/06 – 04/30/09, J. W. Weidner (PI), C. T. Williams (co-PI).
2. National Science Foundation, "REU: Sustainable Energy in Chemical Engineering," $300,000, 09/01/09 – 8/31/13, C. T. Williams (PI), E. P. Gatzke (co-PI).
3. National Science Foundation, "REU: Cradle to the Grave: CO_2 Opportunities and Challenges," $343,142, 03/01/14 – 02/28/17, J. A. Lauterbach (PI), C. T. Williams (co-PI).

RESEARCH SUPERVISION

*Indicates co-supervision with other tenured or tenure-track USC faculty member
** Indicates co-advisement with other tenured or tenure-track USC faculty member
*** Indicates co-advisement with non-tenure track USC research professor
**** Indicates co-advisement with faculty from foreign university and degree from that university

Postdoctoral Fellows (time period) [placement]

1. Dr. Wei Chu (2000-2002) [Senior Corrosion Engineer, BP Exploration (Caspian Sea) Lmt., Baku, Azerbaijan]
2. Dr. Michael R. Strunk (2001-2004) [Director of Research and Development, ETEX Corp., Boston, MA]
3. Dr. Oleg S. Alexeev* (2002-2003) [Research Associate Professor, University of South Carolina, Columbia, SC]
4. Dr. Gwendoline Lafaye* (2002-2004) [Associate Professor, Dept. of Chemistry, Univ. Poitiers, Poitiers, France]
5. Dr. Snigdhamayee Praharaj* (2007-2008) [Automotive Oils Division, Indian Oil R&D, Faridabad, India]
6. Dr. Gengshen Hu (2008-2010) [Assoc. Prof., Inst. of Physical Chemistry, Zhejiang Normal U., Zhejiang, China]
7. Dr. Yaritza M. López-De Jesús (2009-2010) [Senior Application Engineer, Johnson Matthey, Malvern, PA]
8. Dr. Abolfazl Shakouri** (December 2021) [Principal Engineer, Sierra Space, Madison, WI]

PhD Students (date awarded) [placement]

1. Rene J. LeBlanc (December 2004) [Lithium Americas Corp., Reno, NV]
2. Ivelisse Ortiz-Hernandez (August 2006) [Instructor, U. South Carolina, Columbia, SC]
3. Hong Xie** (August 2007) [Associate Engineer, Phillips 66, Bartlesville, OK]
4. S. Beau Waldrup (December 2007) [ExxonMobil, Spring, TX]
5. Dongxia Liu (May 2009) [Johnson Matthey, Wayne, PA]
6. Melanie T. Schaal*** (May 2009) [Honeywell UOP, Des Plaines, IL]
7. Yaritza M. López-De Jesús (August 2009) [Johnson Matthey, Malvern, PA]
8. Jayakiran Rebelli*** (May 2011) [Dymax, Boston, MA]
9. Qiang Gao*** (December 2011) [BASF, Shanghai, China]
10. Xiaojing Sun (May 2013) [Homemaker]
11. Shuai Tan (May 2013) [Honeywell UOP, Des Plaines, IL]
12. Yuliana Lugo-José (August 2014) [Johnson Matthey, Malvern, PA]
13. You-Jung Song (August 2014) [Hyundai, South Korea]
14. Abraham A. Rodríguez*** (May 2015) [SRNL, Aiken, SC]
15. Yunya Zhang*** (December 2015) [Homemaker]
16. José L. Contreras-Mora (May 2018) [Ingevity, Charleston, SC]
17. Xinbin Yu (December 2020) [Post Doc, Pacific Northwest National Laboratory]
18. Abolfazl Shakouri** (December 2021) [Principal Engineer, Sierra Space, Madison, WI]
19. Leandro T. De Castro** (May 2022) [Assistant Professor, University of the Philippines Los Banos, Philippines]
20. Nicholas Gleason-Boure (December 2023) [Savannah River Nuclear Solutions, Aiken, SC]
21. Ismail Paykar (expected December 2027)**
22. Nathan Thornburg (expected December 2027)**

RESEARCH SUPERVISION (CONT.)

MS Students (date awarded) [placement]

1. Qiang Gao**** (December 2007) [BASF, Shanghai, China]
2. Pradeep Pokhrel (expected May 2026)**

Undergraduate Students

Over 60 undergraduate students, including over 20 of them being REU students from other Universities. Among them were 3 NSF Graduate Fellowship recipients, 1 NSF Graduate Fellowship Honorable Mention, 2 Barry M. Goldwater Scholarship recipients, and 1 EPA Star Fellowship recipient.

Visiting International Students (home institution and dates visited) [current placement]

1. Aurelie Vicente (U. Poitiers, Poitiers, France, 11/07-3/08) [Assoc. Prof., University of Caen, Caen, France]
2. Rolando Barrera (U. Antioquia, Medellin, Colombia, 5/08-7/08) [Prof., Colombia U., Bucaramanga, Colombia]
3. Edwin Alarcon (U. Antioquia, Medellin, Colombia, 8/08-12/08) [Asst. Prof., U. Antioquia, Colombia]
4. Haruhiko Mori (U. Osaka, Osaka, Japan, 12/08-1/09) [Industrial Position, Chiba, Japan]
5. Christophe Poupin (U. Poitiers, Poitiers, FR, 6/10-10/10) [Assoc. Prof., Université du Littoral Côte d'Opale, FR]
6. Xiao Chen (Dalian U. Technology, Dalian, China, 8/11-10-11) [Assoc. Prof., Dalian U. Technology, China]
7. Abolfazl Shakouri (Ferdowsi U., Mashhad, Iran, 11/15-07/16) [Princ. Engineer, Sierra Space, Madison, WI]

Visiting International Professors (home institution and dates visited)

1. Dr. Takayoshi Hara (Chiba University, Chiba, Japan, 9/10-10/10)

PROFESSIONAL, ADMINISTRATIVE AND COMMITTEE SERVICE

Professional Societies

Treasurer, Catalysis Science and Technology (CATL) Division, ACS, 09/10 – 12/17
National Vice-Chair of Programming, CRE Division, Section 20a Catalysis, AIChE, 07/07 – 06/10
1st Vice-Chair, National Student Chapters Committee, AIChE, 11/09 – 10/10
2nd Vice-Chair, National Student Chapters Committee, AIChE, 11/08 – 10/09
President, 10/07-9/10; President-Elect, 10/05-9/07; Secretary, 10/03-9/05; Southeastern Catalysis Society

University Level

Carolina Core Revision Review Committee, 1/23-12/23
College of Engineering and Computing Dean Search Committee, 4/15-10/15
University Committee on Tenure and Promotion, 8/11 – 7/13, 08/16 – 05/19
Catalysis Thrust Area Leader, USC Nanocenter, 11/05 – 09/14

College Level

Chemical Engineering Chair Search Committee, College of Engineering and Computing, 10/10 - 12/10
Chair, College Scholarships Committee, College of Engineering and Computing, 02/08 – 5/13
College Undergraduate Curriculum Committee, College of Engineering and Computing, 08/07 – 07/08
Chemical Engineering Chair Search Committee, College of Engineering and Information Tech., 06/06-08/06
Distance Learning Task Force, College of Engineering and Information Technology, 04/00 - 8/00

Department Level

Chair, Department of Chemical Engineering, 02/25 – Present
Undergraduate Program Director, Department of Chemical Engineering, 08/15 – 1/25
Undergraduate Committee, Department of Chemical Engineering, 08/99 – 07/08, 08/15 – 1/25
ChE Alumni Outreach/LinkedIn Site Coordinator (10/21-Present)
Chair, Undergraduate Recruitment Committee, Department of Chemical Engineering, 09/07 – 08/13
Seminar Coordinator, Department of Chemical Engineering, 8/00 - 7/05
Freshman Recruiting and Scholarships Committee, Department of Chemical Engineering, 2/01 – 2013.
AIChE Student Chapter Faculty Advisor, Department of Chemical Engineering, 05/02 - 07/06, 08/07 – 07/11.
Web Site Committee, Department of Chemical Engineering, 5/04 – 5/05
Faculty Search Committee, Department of Chemistry, 8/01 - 5/02
Faculty Search Committee, Department of Chemical Engineering, 8/02 - 5/03, 8/08-7/10
ABET Coordinator, 06/16-present; ABET Self Study Committee, 4/05 - 11/05
Member, Faculty Search Committee, 12/21-5/22
Chair, Faculty Search Committee, 11/23-Present