

Patricia A. Leach

Texas A&M University-Commerce

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Education

2001 – M. A. in Chemistry - Wesleyan University, Middletown, CT 06459.

1988 – S. B. in Chemistry – Mass. Inst. of Tech. Cambridge Ma 02139.

1982 – H. S. diploma - Chelmsford High School, Chelmsford, MA 01863.

Honors

1991 - American Crystallographic Association Summer Short Course Scholarship

1984 - NCAA Div. III Volleyball National Championship Second Place Team (MIT)

1982 - 1986 National Merit Scholar

1982 - Chelmsford High School Gold Metal Scholar (5th out of 685)

1982 - National Society of Professional Engineers Award of Excellence

University Service

1999 - Educational Policy Committee, Wesleyan University – graduate representative

1999 - Graduate Judicial Board, Wesleyan University – chair.

Technical Experience

2007-2017 **Butler Community College**, El Dorado, KS 67042- Adjunct Instructor.

1998-2004 **Wesleyan University**, Middletown, CT 06459 - Research assistant investigating protein-RNA interactions and physics of transition metal MRI contrast agents. Thesis topic: Mechanisms of prototropic exchange in transition metal complexes for looking at potential MRI contrast agents.

1988-1995 **University of Pittsburgh**, Pittsburgh, PA 15260 - Research assistant - synthesis of highly reduced transition metal complexes.

1987 **Massachusetts Institute of Technology**, Cambridge, MA 02139 - undergraduate research assistant evaluating the use of differential scanning calorimetry as tool for examining liquid crystalline solids.

1986 **Parlex Corporation**, Methuen, MA 01844 - Laboratory technician - maintained wet chemical processes in production lines for the manufacture of flexible printed circuit boards.

1985 – **Analog Devices Semiconductor Division**. Wilmington, MA – Summer intern – developed a semi-automated procedure for extracting SPICE parameters from an in-process small geometry CMOS. SPICE is a program that models solid state electronic circuits.

1983 & 1984 - **RCA Automated Systems Division**, Burlington, MA 01803 - Summer intern - developed an interpreter and compiler for transferring technical specifications between systems using assembly language and Pascal-51.

1982 & 1983 - **Massachusetts Institute of Technology**, Cambridge, MA 02139 - Undergraduate research assistant - Measured the in-plane orientations of single crystal silicon wafers using etch-pit techniques. Used rudimentary machining techniques (milling machine, ban saw, drill press, etc...) to build the stage for an elliptical optical zone-melt recrystallizer for generating single crystal silicon wafers.

Technical Expertise

- The preparation and purification of organic, inorganic, and organometallic compounds using:
 - photochemistry
 - standard Schlenk techniques
 - high vacuum techniques
- Radiolabeling of DNA oligomers
- Kunkel mutagenesis
- Electrophoresis (SDS-PAGE and Agarose)
- PCR
- Protein synthesis and purification
- Differential scanning calorimetry
- Atomic absorption spectroscopy
- FT and scanning infrared spectrometry
- UV-vis spectroscopy
- TLC, GC, and GC-mass spectrometry
- CW and pulse NMR spectrometry (CW 20, 60, 90 MHz; 300, 400 and 500 MHz pulse spectrometers, relaxation time measurements)
- Small molecule single crystal X-ray diffraction crystallography.
- Simple glass-blowing.

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Publications

- “Calorimetric Study of Nonyloxybenzoylcyanobenzene (9OBCAB)”
P. Leach, P. Das, C. W. Garland, and R. Shashidahr *Mol. Cryst. and Liq. Cryst.* **1989**, *168*, 183.
- “Synthesis and Characterization of the Triangulo Raft Cluster
[$\{AgCo(CN(2,6-Me_2C_6H_3)_4)_3\}$]: A Bimetallic Hexanuclear Isonitrile Cluster,” Patricia A. Leach, Steven J. Geib, N. John Cooper *Organometallics*, **1992**, *11*, 4367-370.
- “ESCA Study of “Model” Allyl-Based Mo/SiO₂ Catalysis” J. M. Aigler, J. L. Brito, P. A. Leach, M. P. Houalla, A. Proctor, N. J. Cooper, D. M. Hercules *J. Phys. Chem.* **1993**, *97*, 5699-5702.
- “The Synthesis and Structural Characterization of $[Co(CN(2,6-Me_2C_6H_3)_4)]^-$, The First Transition Metal Isonitrate” Patricia A. Leach, Joseph A. Corella, II, Steven J. Geib, N. John Cooper *J. Am. Chem. Soc.* **1994**, *116*, 8566-8574.
- “Formation of the 1,4-Diazabutadien-2-yl Complex
[$Mn(CNPh^*)_4[C(=NPh^*)C(CH_3)=N(Ph^*)]$] Through Methylation of a Manganese(-I) Isonitrate” Tracy L. Utz, Patricia A. Leach, Steven J. Geib, N. John Cooper *Organometallics* **1997**, *16*, 4109-4114.
- “Synthesis, derivatization, and structural characterization of
[$Mn(CNC_6H_3Me_2-2,6)_5$]⁻, a Five-Coordinate Isonitrate Complex Containing Mn(-I), T. L. Utz, P. A. Leach, S. J. Geib, N. J. Cooper *Chem. Commun.* **1997**, 847-848

Oral Presentation

- “Synthesis of $[Mn\{CN(2,6-Me_2C_6H_3)_5\}]^-$, a Five Coordinate Isonitrile Complex of Mn(-1), and Structural Comparison of Ligand Characteristics of CO and CN(2,6-Me₂C₆H₃)” Patricia A. Leach, Steven J. Geib, N. John Cooper, 208th National Meeting, American Chemical Society, Washington, D. C., August 1994.

References Available Upon Request.