

Charles Craig Kirkpatrick, Ph.D.

Education

Bachelor of Science (Chemistry), University of Missouri-Columbia 1978

Doctor of Philosophy (Inorganic Chemistry), Indiana University-Bloomington, 1982

"Oxidative Addition to Metal-Metal Bonds. The Addition of X₂ Type Molecules to Dimetal Hexakis Alkoxides"

Advisor: Malcolm H. Chisholm

Professional Experience

Aug. 2003 – Present	Associate Professor of Chemistry , Department of Chemistry, Saint Louis University
1994 - 2003	Dean , Parks College of Engineering and Aviation, Saint Louis University
1993 - 1994	Associate Professor and Chair , Department of Science and Mathematics, Parks College, Saint Louis University.
1990 - 1993	Associate Professor of Chemistry , Department of Science and Mathematics, Parks College, Saint Louis University.
1985 - 1990	Assistant Professor of Chemistry , Department of Science and Mathematics, Parks College, Saint Louis University.
1984 - 1985	Scientific Programmer , Department of Science and Mathematics, Parks College, Saint Louis University.
1982 - 1983	Senior Research Chemist , Dow Chemical USA, Plaquemine, Louisiana
1978 - 1982	Graduate Research Assistant , Indiana University
1977 - 1978	Laboratory and Teaching Assistant , University of Missouri-Columbia

Professional Affiliations

American Chemical Society
American Society for Engineering Education
Sigma Xi

Awards, Fellowships, Honorary Societies

1980-82	Standard Oil of Ohio Graduate Fellowship
1981	Nebergal Award Winner for Research in Inorganic Chemistry, Indiana University
1994	Outstanding Faculty Member Award, Parks College Student Government
1996	Alpha Sigma Nu
2000	Golden Key Honor Society

Research Interests

Development of GasTrans--An Internet-based computer database of theoretical and experimental gaseous ion-neutral mobility data. An alpha version of the site is running (<http://165.134.19.7/gastrans/index.php>). A beta site is set to run in Spring 2006.

Computational quantum chemistry—Using GAMESS, Gaussian and other programs for computational chemistry to understand the behavior and properties of transition metal organometallic compounds.

Arsenic Detection in and Removal from Water—An undergraduate research project about the removal of arsenic from drinking water. The technology can be universally applied to all water sources, but the specific geographic area of interest is Bangladesh.

Research Publications

Viehlend, Larry A.; Kirkpatrick, Charles C.. "Test of interaction potentials for rare gas-halide systems." *Chemical Physics* (1996), 202(2,3), 285-94.

Viehlend, Larry A.; Kirkpatrick, Charles C.. "Relating ion/neutral reaction rate coefficients and cross-sections by accessing a database for ion transport properties." *International Journal of Mass Spectrometry and Ion Processes* (1995), 149/150 555-71.

Kirkpatrick, Charles C.; Viehlend, Larry A. "Interaction potentials for the thallium ion-rare gas systems." *Chemical Physics* (1988), 120(2), 235-8.

Kirkpatrick, Charles C.; Viehlend, Larry A. "Interaction potentials for the halide ion-rare gas systems." *Chemical Physics* (1985), 98(2), 221-31.

Chisholm, Malcolm H.; Folting, Kirsten; Huffman, John C.; Kirkpatrick, Charles C.. "Reactions of metal-metal multiple bonds. 10. Reactions of $\text{Mo}_2(\text{OR})_6$ (metal-metal triple bond) and $[\text{Mo}(\text{OR})_4]_x$ compounds with molecular oxygen. Preparation and characterization of oxo alkoxides of molybdenum: $\text{MoO}_2(\text{OR})_2$, $\text{MoO}_2(\text{OR})_2(\text{bpy})$, $\text{MoO}(\text{OR})_4$, $\text{Mo}_3\text{O}(\text{OR})_{10}$, $\text{Mo}_4\text{O}_8(\text{OR})_4(\text{py})_4$, and $\text{Mo}_6\text{O}_{10}(\text{OR})_{12}$." *Inorganic Chemistry* (1984), 23(8), 1021-37.

Chisholm, Malcolm H.; Huffman, John C.; Kirkpatrick, Charles C.. "Reactions of $\text{Mo}_2(\text{OR})_6$ (metal-metal triple bond) compounds (R = iso-Pr and tert-Bu) with benzoyl peroxide." *Inorganic Chemistry* (1983), 22(12), 1704-7.

Chisholm, Malcolm, H.; Folting, Kirsten; Huffman, John C.; Kirkpatrick, Charles C.. "Crystal and molecular structure of $\text{Mo}_6\text{O}_{10}(\text{OCHMe}_2)_{12}$: a serpentine chain of molybdenum atoms and observation of semibridging alkoxy ligands." *Journal of the Chemical Society, Chemical Communications* (1982), (3), 189-90.

Chisholm, M. H.; Folting, K.; Huffman, J. C.; Kirkpatrick, C. C.. "Oxotrimolybdenum(IV) alkoxides: $\text{Mo}_3(\mu_3\text{-O})(\mu_3\text{-OR})(\mu_2\text{-OR})_3(\text{OR})_6$, where R = isopropyl and neopentyl. Synthetic considerations." *Journal of the American Chemical Society* (1981), 103(19), 5967-8.

Chisholm, M. H.; Huffman, J. C.; Kirkpatrick, C. C.; Leonelli, J.; Folting, K. Metal alkoxides - models for metal oxides. 1. Preparations and structures of hexadecaalkoxytungsten compounds, $\text{W}_4(\text{OR})_{16}$, where R = Me and Et, and octaoxotetraisopropoxytetrapyridinotetramolybdenum, $\text{Mo}_4(\text{O})_4(\mu\text{-O})_2(\mu_3\text{-O})_2(\text{O-i-Pr})_2(\mu\text{-O-i-Pr})_2(\text{py})_4$. *Journal of the American Chemical Society* (1981), 103(20), 6093-9.

Conference Presentations

"Heirarchical System of Outcomes Assessment at Parks College of Engineering and Aviation"; Karunamoorthy, S, Kirkpatrick, C.C., Stolzer, A.J., 2003 ASEE Annual Conference and Exposition, Nashville, TN, June 22-25, 2003. Paper 107, Session 1360.

Undergraduate Student Projects

"Impact of Dissolved and Entrained Air in the Properties of Shock Absorber Oil"; Co-advisor to Mechanical Engineering Senior Design Team (two student members) Industry Project with Penske, Fall 2004. Worked with students to (1) review literature, (2) develop method for removing air from oil and (3) analyze data for compressibility of oil samples.

"Design of a Magnesium Oxide Insulation Tape Manufacturing Process"; Advisor to Mechanical Engineering Senior Design Team Industry Project with Watlow Electric, 2003.

United States Patent

Kirkpatrick, Charles C. (Dow Chemical, USA). "Catalysts for polymerization of cyclic dihalophosphazene oligomers." U.S. 4708858 (1987).

Recent Proposals

Co-PI for NSF-CCLI grant proposal "Materials Synthesis and Characterization across the Science and Engineering Curriculum at Saint Louis University," Submitted 2003, resubmitted 2004.

Recent Media

Praxair Explosion, June 24, 2003—live on-air interviews on KMOV-TV and KMOX-radio regarding explosions and fire at a compressed gas distribution site in St. Louis, MO.

Contact Information

Department of Chemistry
Saint Louis University
Monsanto Hall Room 201
3501 Laclede Ave.
St. Louis, MO 63103
314-977-3202

kirkpacc@slu.edu

<http://chemistry.slu.edu/Kirkpatrick>