

MARTIN L. KIRK



Curriculum Vitae and
Selected Publications

H-index = 45, over 6319 citations

CURRICULUM VITAE

MARTIN L. KIRK

The University of New Mexico
Department of Chemistry and Chemical
Biology
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EDUCATIONAL HISTORY

Postdoctoral, 7/90-9/93, National Science Foundation Postdoctoral Fellow, Stanford University, Stanford, CA 94305. (Prof. Edward I. Solomon)

Doctor of Philosophy, 8/90, The University of North Carolina at Chapel Hill, Chapel Hill, NC, Inorganic Chemistry, Dissertation Title: "Unusual Linear Chain Magnetism" Prof. William E. Hatfield, advisor.

Bachelor of Science, 6/85, West Virginia University, Morgantown, WV, Chemistry. *Cum Laude*.

RESEARCH INTERESTS

Metallobiochemistry. Mechanisms of electron and atom transfer in pyranopterin Mo and W enzymes. Spectroscopic studies on pyranopterin molybdenum enzyme active sites coupled with parallel studies on small molecule analogs. Electronic structure contributions to reactivity in bioinorganic chemistry. I have more than 25 years of experience in physical inorganic chemistry and more than 20 years experience in bioinorganic chemistry. I have a strong track record of sustained federally funded grant support from NIH and NSF. Our research program is involved in spectroscopic, synthetic, biochemical and computational studies of pyranopterin molybdenum enzymes and models, as well as other enzyme systems. We are especially focused on molybdoenzymes, NO synthase, and LuxS. Our spectroscopic approach employs a combination of magnetic circular dichroism, low-temperature electronic absorption, variable frequency EPR, and resonance Raman. All of these capabilities are available in the PIs laboratories at The University of New Mexico.

Molecular Electronics and Quantum Information Processing. Spectroscopic, magnetic, and computational studies of molecular systems related to molecular electron transport and quantum interference effects. Understanding the electronic origins of molecular rectification. Developing new molecule-based systems as models of solid-state inorganic spin electronic (spintronic) systems. Excited state exchange interactions to control and manipulate dynamic spin processes in multispin molecular excited states

Multispin Interactions in Ground and Excited States. New single-molecule magnets. Lanthanide and Actinide magnetic properties. Excited state contributions to ground state exchange coupling. Magnetostructural correlations.

EMPLOYMENT HISTORY PRINCIPLE POSITIONS SINCE THE BACHELOR'S DEGREE

Distinguished University Professor, 8/16 – present, Department of Chemistry and Chemical Biology, The University of New Mexico, Albuquerque, NM 87131.

Associate Faculty Member, 8/19 – present, Center for Quantum Information and Control (CQuIC), The University of New Mexico, Albuquerque, NM 87131.

Faculty, 7/14 – present, Center for High Technology Materials, The University of New Mexico, Albuquerque, NM 87131.

Associate Chair, 8/09 – 8/12, Department of Chemistry and Chemical Biology, The University of New Mexico, Albuquerque, NM 87131.

Interim Chair, 8/08 – 8/09, Department of Chemistry and Chemical Biology, The University of New Mexico, Albuquerque, NM 87131.

Associated Faculty, Nanoscience and Microsystems Graduate Program, The University of New Mexico, Albuquerque, NM 87131.

Adjunct Professor, 2012 – present, Department of Chemistry, New Mexico Tech, Socorro, NM 87801.

Professor, 7/04 – present, Department of Chemistry and Chemical Biology, The University of New Mexico, Albuquerque, NM 87131.

Associate Professor, 7/99 – 7/04, Department of Chemistry, The University of New Mexico, Albuquerque, NM 87131.

Research Fellow (Sabbatical Leave), 7/03-1/04, Glenn T. Seaborg Institute Los Alamos National Laboratories, Los Alamos, NM

Fellow in the School of Chemistry, 1/03-2/03, The University of Melbourne, Melbourne, Australia

Assistant Professor, 9/93 - 6/99, Department of Chemistry, The University of New Mexico, Albuquerque, NM 87131.

National Science Foundation Postdoctoral Fellow, 7/90-9/93, Stanford University, Stanford, CA 94305. with Prof. Edward I. Solomon.

Graduate Research Assistant, 1986-1990, The University of North Carolina at Chapel Hill, Chapel Hill, NC.

Undergraduate Chemistry Tutoring Program, 1988 -1990, The University of North Carolina at Chapel Hill, Chapel Hill, NC.

Laboratory Teaching Assistant, 1985 - 1986, The University of North Carolina at Chapel Hill, Chapel Hill, NC.

PROFESSIONAL RECOGNITIONS, HONORS, & MEMBERSHIPS

Co-Organizer of the Telluride Science Research Center meeting on “Molecules and Mechanisms for Quantum Information Processing”, 2019 (David Shultz, Mike Wasielewski, Martin Kirk)

Member, Faculty of 1000Prime, Bioinorganic Section – 2019 - present

National Science Foundation NM EPSCoR Mentoring Award, 2018

Humphrey Symposium Lecturer, University of Vermont, 2017

Distinguished Professor of Chemistry, The University of New Mexico

Editorial Advisory Board, *ACS - Inorganic Chemistry*, 2013 - 2016

Advisory Board Member, New Mexico Institute of Mining and Technology, 2016 – 2019

Advisory Board Member, Center for High Technology Materials, 2016- present

Member, Center for High Technology Materials, New Mexico, 2014 - present

Former ACS Inorganic Division; Chair, Bioinorganic Subdivision.

Chair, Molybdenum and Tungsten Enzyme Gordon Conference, Barga, Italy.

Co-Organizer of the Telluride Science Research Center meeting on Zero-Field Spin Interactions in Chemistry. 2016 (David Shultz, James McCusker, Martin Kirk)

Research Associateship Programs Panel, National Research Council and National Academy of Sciences, 2011 – 2017.

Associated Faculty, Nanoscience and Microsystems Graduate Program, 2010 – present.

International Organizing Committee - Molybdenum and Tungsten Enzymes Conference, MOTEC, 2009 – present

Local NM Section of the American Chemical Society

National Science Foundation Postdoctoral Fellowship in Chemistry, 7/90-9/93, Stanford University.

Highlands in Chemistry Lecturer - Virginia Tech

Distinguished Seminar Speaker - Duquesne University

Research Fellow of the Seaborg Institute at the Los Alamos National Laboratory, 2004

Fellow in the School of Chemistry, University of Melbourne, 2003

Speaker, German Research Consortium PROTRAIN (Prosthetic groups - transport and insertion)

National Science Foundation Summer Institute Grant Award Winner, 1989, Pittsburgh Supercomputing Center.

M. L. Kirk

B.S. *cum laude* , Chemistry, West Virginia University 1985.

Inducted Phi Lambda Upsilon National Chemistry Honorary, 1984.

Phillips Scholar, 1983 - 1985, West Virginia University.

Member of the American Chemical Society 1990 - present.

Member of the Society of Bioinorganic Chemistry (SBIC)

