

Mark David McClain

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Professor of Chemistry

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Education

- University of Michigan, Ann Arbor, MI
Ph.D. in Inorganic Chemistry, August, 1994
Dissertation: *Poly(3-alkylthiophene)s and Poly(3-alkylthiophene ketone)s Via Coupling of Organomercurials and A Dicarbenium Ion Stabilized by a Molybdenum Dimer.*
M.S. Chemistry, May, 1991
- Cedarville University, Cedarville, OH
B.A. in Chemistry, June, 1989, with Bible, Mathematics, and Physics minors, Highest Honors

University Service & Responsibilities

- Director, Center for Lifelong Learning, 2008- present. *Responsible for oversight, policy, vision, and budgeting for Summer Sessions, Summer Studies, Cedarville Academy, and Continuing Education programs; manage twenty staff (office personnel, program coordinators, instructors, and teaching assistants).*
- Faculty Summer Scholarship Grant review board, 2007-present.
- Director, Summer School & Continuing Education, 2005-2008. *Responsible for oversight, policy, vision, and budgeting for Summer School, Summer Studies, and Continuing Education; manage sixteen staff (office and instructors).*
- Self-Study Steering Committee, 2004-2007. *Oversight for demonstrating satisfaction of the Higher Learning Commission's Criterion #3 concerning Student Learning and Effective Teaching for university re-accreditation.*
- Chair, Student Learning & Effective Teaching Subcommittee, 2004-2007. *Responsible for selecting and guiding faculty and staff members to collect data and compose a chapter of the 2007 NCA Self-Study.*
- Educational Policies Committee, 2002-2003. *Advisory service to the Academic Vice President on academic policy and educational excursions.*
- Faculty Tenure Committee, 2002-2003. *Evaluation of tenure-track faculty during fourth or sixth year of appointment for recommendation to the Academic Vice President.*
- Chemistry Program Director, 2000-2007. *Oversight of the chemistry faculty teaching assignments, programmatic improvements, curricular review, and equipment acquisitions. Representing the university at American Chemical Society award meetings.*
- Strategic Planning Committee, 2000-2002. *Advisory service to the University President on the state of the university with recommendations for institutional advancement.*
- Strategic Planning for Future Faculty Task Team, Spring 1999. *Advisory service to the Academic Vice President to propose a program to encourage students to pursue university teaching.*
- Science & Mathematics Department Recruiting Day, 1997-1999. *Directed the creation and successful implementation for the first three years. Collaborated with Admissions, External Relations, and Public Relations to develop and distribute brochure. Coordinated department faculty, staff, and students involvements in program and support activities.*
- Faculty advisor to Alpha Chi, 1998-2007. *Oversight and leadership development for university men's service organization.*

Honors & Awards at Cedarville University

- Faculty Scholar Award, Cedarville University, 2003-4.
- Senior Research Associate, National Research Council, 2003-4.
- Tenure granted December, 2001.

Ministry Involvements

- Deacon, Emmanuel Baptist Church, Xenia, OH, 2004-present.
- Church Clerk, Emmanuel Baptist Church, Xenia, OH, 2004-2006
- Operations Oversight, Emmanuel Baptist Church, 2006-present.
- Small Group Leader, Emmanuel Baptist Church, 2004-present.
- Building Committee, Emmanuel Baptist Church, 2003-2006.
- Pastoral Search Committee co-chair, Emmanuel Baptist Church, 2005-2006.
- Regular, but not continuous service in orchestra, AWANA, and Adult Bible Study teaching at Emmanuel Baptist Church, 1997-present.
- Fit to Be Tied mentors, 2006-2007; 2001-2002

Teaching Experience

- Cedarville University, Cedarville, OH
 - Professor of Chemistry, 2008-present
 - Associate Professor of Chemistry, 2002-present
 - Assistant Professor of Chemistry, 1996-2002

Courses Taught

General Chemistry I (CHEM1110)
General Chemistry II (CHEM1120)
Introduction to Research in Chemistry (CHEM2800)
Inorganic Chemistry (CHEM3410)
Topics in Chemistry: Heterocyclic Aromatics Polymers (CHEM4880)
Research in Chemistry (CHEM 4830)
Internship in Chemistry (CHEM4910)
Advanced Chemistry Lab (CHEM4210)
Independent Study in Chemistry (CHEM4900)
Senior Seminar—Chemistry (CHEM4800)
Chemistry & the Environment (GSCI162)
Principles of Chemistry (CHEM154)

- Southwestern Indian Polytechnic Institute, Albuquerque, NM
 - Education Outreach Volunteer, Fall, 1995
 - Developed and taught Elements of Chemistry (lecture)
- University of Michigan, Ann Arbor, MI
 - Graduate Teaching Assistant, 1989-1994
 - Taught General, Organic, and Inorganic Chemistry (lab and lecture)

Professional Development Activities

- Attended 70th Annual Meeting of the Association for Continuing Higher Education, Nashville, TN, Nov. 9-11, 2008.

- Attended 39th Central Regional Meeting, American Chemical Society, Columbus, OH, June 13, 2008.
- Attended Higher Learning Commission annual conference, Chicago, IL, April 2008.
- Attended TeachWell seminar “Using Learning Modules in Blackboard CE6”, Dr. Wes Baker, March 12, 2008.
- Attended 2008 North Central Conference on Summer Sessions annual conference, Chicago, IL, March 5-6, 2008.
- Attended Center for Teaching & Learning “Objective Writing Workshop”, Don Humphreys, February 14, 2008.
- Attended TeachWell seminar “Evaluating Student Writing”, Julie Moore, February 13, 2008
- Attended TeachWell seminar “Teaching Generation Y”, Dr. Jim Guilkey, November 12, 2007.
- Attended 69th Annual Meeting of the Association for Continuing Higher Education, Roanoke, VA, October 27-30, 2007.
- Attended 27th National Conference of the Adult Higher Education Alliance (SOCHE hosted), Dayton, OH, October 11, 2007.
- Participated in teaching book discussion group, 2007-2008.
- Attended 2007 American Chemical Society Central Regional Meeting, Covington, KY, May 21-22, 2007.
- Attended 2007 Center for Teaching & Learning Conference sessions on GroupWise Calendar, Reflective Pedagogy, Copyright Guidelines, Integration of Faith & Learning, Deliberate Practice, and WebCT 6.0, May 14-21, 2007.
- Attended University of Michigan Science & Education Workshops, Ann Arbor, MI, May 12, 2007.
- Educational study tour of Israel, March 13-22, 2007.
- Attended Faculty Learning Community Institute, Miami University, March 9, 2007.
- Attended CCCU Consultation on Adult Education, Indiana Wesleyan University, February 16, 2007.
- Member, Cedarville University Faculty Learning Community, 2006-present.
- Attended SOCHE Academic Leaders Conference “Chairing for the Future,” Wittenberg University, December 8, 2006.
- Attended 43rd Annual Conference of the North American Association of Summer Sessions, Kansas City, MO, November 5-7 2006.
- Attended 2006 BSG: A Creation Biology Study Group Conference, Cedarville University, June 7-9, 2006.
- Attended WebCT training session on Using Online Discussion, Cedarville University, May 24, 2006.
- Attended ISI/Web of Science training session, Centennial Library, May 23, 2006.
- Attended 231st National Meeting, American Chemical Society, Atlanta, GA, March 26-28, 2006.
- Attended “New Administrator Workshop” at the 42nd Annual Conference of the North American Association of Summer Sessions, Philadelphia, PA, November 12-15 2005.
- Attended 11th Annual Conference on Bioethical Issues, Cedarville University, November 4, 2005.
- Completed BETH-4390 *Eschatology*, Cedarville University, May 2005.
- Attended Higher Learning Commission Annual Meeting, April 2005.
- Sabbatical Leave, Air Force Research Laboratory, Wright-Patterson AFB, OH, May 2003-July 2004.
- Attended “Learning Styles” seminar, Cedarville University, November 12, 2001.
- Attended “Teacher-Made Testing”, Workshop #3 of “Professional Development Seminars”, Cedarville College, May 11, 2000.
- Participated in 1999 Chautauqua Course “Changing Science Courses to Promote Critical Thinking”, April 7-9, 1999.
- Participated in 1998 Faith-Learning Institute, August 24-28, 1998.
- Trained as Certified State Science Fair Judge, April 13, 1998.
- Participated in Cedarville College Faculty Development Workshop on Integration, Winter 1998.
- Participated in Dr. Richard Chewning’s faculty integration seminar, Fall 1997.

- Participated in “Day 2-to-40 Workshop,” University of Michigan, May 10, 1997.
- Completed American Chemical Society Short Course “Frontiers in Inorganic Polymers”, October, 1994.

Regular Reading

Chemical & Engineering News

Christian Scholars Review

Christianity Today

Chronicle of Higher Education

Creation Research Society Quarterly

Journal of Continuing Higher Education

Leadership

Materials Research Society Bulletin

Summer Academe

Post-Graduate Research Experiences

- National Research Council Senior Research Associate, Wright-Patterson AFB, OH, May 2003—July 2004, and May-July 2005. *Electroactive Polymers of Thiazolo[5,4-d]thiazole for Electronic Applications.*
- Summer Faculty Fellow at the Air Force Research Lab, Wright-Patterson AFB, OH, Summer, 2002. Report title: *Reduction of Benzimidazole Model Compounds.*
- Summer Faculty Fellow at the Air Force Research Lab, Wright-Patterson AFB, OH, Summer, 2001. Report title: *n-Dopable Model Compounds.*
- Summer Faculty Fellow at the Air Force Research Lab, Wright-Patterson AFB, OH, Summer, 2000. Report title: *Aryl-Bridged Benzimidazoles as Models for n-Doped Polymers.*
- Systran Federal Corporation contract employee at the Air Force Research Lab, Wright-Patterson AFB, OH, Summer, 1999. Report title: *Synthesis and Characterization of Thiazole Materials.*
- Summer Faculty Fellow at the Air Force Research Lab, Wright-Patterson AFB, OH, Summer, 1997. Report title: *A Molecular Orbital Theory Analysis of Oligomers (n = 1 to 7) of 2,2'-Bithiazole and Partially Reduced 3,3'-Dimethyl-2,2'-Bithiazolium Cations.*
- Undergraduate Research Mentor, Cedarville University, 1999-present.
- Post-Doctoral Research Scientist, Properties of Organic Materials Department, Sandia National Laboratories, 1994-1996. Projects: Hybrid inorganic/organic materials synthesis and characterization.

Professional Memberships

- American Chemical Society, Polymer Chemistry and Inorganic Chemistry Divisions, Dayton, OH Section.
- Materials Research Society
- Creation Research Society
- North American Associations of Summer Sessions
- North Central Conference for Summer Sessions
- Association for Continuing Higher Education

Professional Consultation

- *Proprietary Engineering Application Consultation*, DRS-Engineering Development Labs, Inc., Dayton, OH, February-March 2005.
- *Hydrolytic Stability of Pristine and p-Doped Polythiophenes*, under Air Force Contract F33615-99-C-5803, Research Order 016, Dopant Stability Issues in Polythiophenes, sponsored by Air Force Research Laboratory, Materials and Manufacturing Directorate (AFRL/ML), Nonmetallic Materials Division (MLB), Polymer Branch (MLBP) at Wright-Patterson AFB, OH, delivered January 31, 2001.

Professional Presentations

- *Embedding Technology to Enhance Chemistry Learning*, ACSI Dayton Convention, Nov. 13, 2008.
- *Engagement and Learning through Chemistry Demonstrations*, ACSI Dayton Convention, Nov. 13, 2008.
- *Embedding Technology for Learning Enhancement on a Shoestring Budget*, 39th Central Regional Meeting, American Chemical Society, Columbus, OH, June 13, 2008.
- *Electron-Accepting Materials by Design*, Wright State University, Chemistry Department, invited seminar, May 27, 2005.
- *Synthetic and Theoretical Investigations of Thiazolothiazole Materials*, coauthor, 6th International Symposium on Functional p-Electron Systems, Cornell University, Ithaca, NY, June 14-18, 2004.
- *Electron-Accepting Materials Containing Thiazolo[5,4-d]thiazole*, 9th International Conference on Electronic Materials/Materials Research Society Spring 2004 joint meeting, San Francisco, CA, April 12-16, 2004.
- *Electroactive Materials Containing Thiazolo[5,4-d]thiazole*, AFRL Materials Lab Polymer Branch, February 13, 2004.
- *Carrots, Conjugation, and Conductivity*, Cedarville University Chapel, March 31, 2004
- *Electrically Conductive Polymers*, Wilberforce University, March 24, 2004.
- *Online Pre-Laboratory Exercises for Non-majors*, 222nd National Meeting, American Chemical Society, Chicago, IL, August 26, 2001.
- *Aryl-Bridged Benzimidazoles as Models for n-Doped Polymers*, Materials Research Society 2001 Spring Meeting, San Francisco, CA, April 18, 2001.
- *Models for n-Doped Conducting Polymers*, Wright State University, Chemistry Department, invited seminar, April 6, 2001.
- *Synthesis and Modeling of Benzimidazoles for n-Doped Polymers*, 219th National Meeting of the American Chemical Society, San Francisco, CA, March 26, 2000.
- *Electronic and Structural Consequences of n-Doping: Bithiazole Oligomers and Partially Reduced Bithiazolium Cations*, Fourth International Topical Conference on Optical Probes of Conjugated Polymers and Photonic Crystals, Salt Lake City, Utah, February 16, 2000.
- *Electronic Properties of Bithiazole Oligomers*, 30th Central Regional Meeting, American Chemical Society, Cleveland, OH, May 28, 1998.
- *Controlling Porosity in Bridged Polysilsesquioxanes through Elimination Reactions*, Materials Research Society 1996 Spring Meeting, San Francisco, CA, April 10, 1996.
- *Synthesis and Modification of a Norbornene-bridged Polysilsesquioxane Gel via Retro Diels-Alder Reaction*, 7th Annual Joint Meeting of the NM Sections of the Materials Research Society and the American Ceramic Society, Albuquerque, NM, October 30, 1995.
- *Organomercurial Synthesis of Electronically Delocalized Polymers*, 208th National Meeting, American Chemical Society, Washington, DC, August 24, 1994.
- *Novel Organometallic Synthesis of Polythiophenes via Mercurials*, 207th National Meeting, American Chemical Society, San Diego, CA, March 15, 1994.
- *Structure and Reactivity of $Cp_2Mo_2(CO)_4(CH_2CCCH_2)(BF_2)_2$, a Dinuclear Metal-Stabilized Dicarbenium Ion*, 206th National Meeting, American Chemical Society, Chicago, IL, August 24, 1993.

Professional Publications

- McClain, Mark D.; Dudis, Douglas S. "Electronic and Structural Consequences of n-Doping: Bithiazole Oligomers and Partially Reduced Bithiazolium Cations", *Synthetic Metals* **2001**, 116(1-3), 199-202.
- Mark D. McClain and Douglas S. Dudis, "Synthesis and Modeling of Benzimidazoles for n-Doped Polymers", *Polymer Preprints* 2000, 41(1), 233-234.

- Shaltout, Raef; Loy, Douglas A.; McClain, Mark D.; Prabakar, Sheshasayana; Greaves, John; Shea, Kenneth J. "Structural Modification of Sol-Gel Materials Through Retro Diels-Alder Reaction", *Polymer Preprints* **2000**, 41(1), 508-9.
- Loy, Douglas A.; Jamison, Gregory M.; McClain, Mark D.; Alam, Todd M. "Spontaneous Polymerization of Phenylphosphaethyne", *Journal of Polymer Science: Part A: Polymer Chemistry* **1999**, 37, 129-133.
- Carpenter, J. P.; Yamanaka, S. A.; McClain, M. D.; Loy, D. A.; Greaves, J.; Shea, K. J. "The Impact of Substitution Geometry on the Formation of Ethenylene-Bridged Polysilsesquioxanes", *Polymer Preprints* **1998**, 39 (1), 589-90.
- Loy, D. A., Carpenter, J. P., Yamanaka, S. A., McClain, M. D., Greaves, J., Hobson, S., Shea, K. J. "Polymerization of Bis(triethoxysilyl)ethenes. Impact of Substitution Geometry on the Formation of Ethenylene- and Vinylene-Bridged Polysilsesquioxanes", *Chemistry of Materials* **1998**, 10, 4129-4140.
- Karr, P.; McClain, M. D. *Instructor's Resource Manual to accompany Chemistry for Changing Times*, 8th ed., by John W. Hill and Doris K. Kolb, Prentice Hall: Englewood Cliffs, NJ, 1997.
- Curtis, M. D.; McClain, M. D. "Polythiophenes (Organometallic Synthesis)." *Polymeric Materials Encyclopedia*, Ed. Joseph. C. Salamone, Boca Raton: CRC Press, 1996, pp. 6918-6923.
- Gregory M. Jamison, Randall S. Saunders, David R. Wheeler, Mark D. McClain, and Douglas A. Loy, "Cycloaddition of Phosphaalkynes to High-Oxidation-State Metal Alkylidenes: Synthesis and Characterization of a Unique Phosphametallacyclobutene via an Alkoxide Ligand Shift", *Organometallics* **1996**, 15, 16-18.
- M. David Curtis and Mark D. McClain, "A New Poly(3-alkylthiophene) Synthesis via Pd-Catalyzed Coupling of Thienyl Mercuric Chlorides", *Chemistry of Materials* **1996**, 8, 936-944.
- M. David Curtis and Mark D. McClain, "Synthesis of Poly(3-alkylthienylene ketone)s by the Pd-Catalyzed Copolymerization of Carbon Monoxide with Thienyl Mercuric Chlorides", *Chemistry of Materials* **1996**, 8, 945-951.
- Mark D. McClain, Douglas A. Loy, and Sheshasayana Prabakar, "Controlling Porosity in Bridged Polysilsesquioxanes Through Elimination Reactions, *Better Ceramics Through Chemistry VII: Organic/Inorganic Hybrid Materials* **1996**, 435, 277-282.
- Mark D. McClain, Douglas A. Whittington, Deanna J. Mitchell, and M. David Curtis, "Novel Poly(3-alkylthiophene) and Poly(3-alkylthienylene ketone) Syntheses via Organomercurials", *Journal of the American Chemical Society* **1995**, 117, 3887-3888.
- Stacey A. Yamanaka, Joseph P. Carpenter, Mark D. McClain, and Douglas A. Loy, "Synthesis and Characterization of Vinyl-bridged Polysilsesquioxane Sol-Gel Materials", *International SAMPE Technical Conference Series* **1995**, 27, 568-577.
- Mark D. McClain, Michael S. Hay, M. David Curtis, and Jeffrey W. Kampf, "Structure, Reactivity, and an EHMO Analysis of a Metal-Stabilized Dicarbenium Ion, $[\text{Cp}_2\text{Mo}_2(\text{CO})_4(\text{CH}_2\text{CCCH}_2)][\text{BF}_4]_2$ ", *Organometallics* **1994**, 13, 4377-4386.
- Mark D. McClain and M. David Curtis, "Novel Organometallic Synthesis of Polythiophenes Via Mercurials", *Polymer Preprints* **1994**, 35 (1), 307-308.
- M. David Curtis, John I. Nanos, and Mark D. McClain, "Thiazole Polymers and Method of Producing Same", US Patent 5,536,808, 10-5-1994.

Manuscript Reviewed

Chemical Reviews, June, 2004

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