

Biographical Sketch: Louis Messerle, Associate Professor of Chemistry

I. Professional Preparation:

Postdoctoral (Organometallic Chemistry) University of Michigan, Ann Arbor, MI, 1979-81
Ph.D. (Inorganic Chemistry) Massachusetts Inst. of Technology, Cambridge, MA, 1979
Sc.B (Chemistry) magna cum laude w/ Honors, Brown University, Providence RI, 1975

II. Appointments:

Adjunct Associate Professor of Radiology, Carver College of Medicine, The University of Iowa, 2003
Associate Professor of Chemistry, The University of Iowa, 1990
Assistant Professor of Chemistry, The University of Iowa, 1984-1989
Assistant Professor (non-tenure track), Department of Chemistry; Junior Fellow, Michigan Society of Fellows, University of Michigan, Ann Arbor, MI, 1981-4

III. Awards:

2000 Fellow, University of Iowa Center for Advanced Studies

IV. Selected Ten Highest-Impact Publications and Patents (52 total):

1. Kolesnichenko, V.; Hay, D.N.T.; Swenson, D.C.; Messerle, L. $W_3Cl_{10}(Hg_2Cl_2)_2$, A Reactive 1-D Polymer of Triangular Tungsten Clusters with Terminal and Intercluster-Bridging Mercurous Chloride Ligands: Main Group Metal Halide By-Products as Versatile Ligands in Reductive Synthesis of Early Transition Metal Halide Clusters. *J. Cluster Sci.* **2010**, *21*, 515-523. (invited)
2. Thurston, J.H.; Dougherty, M. J.; Swenson, D.C.; Messerle, L. $[Bi_5(dpd)_6\text{-}C\text{-}CH_3CN](ClO_4)_3$, a Supramolecular, Tetrahedral Pentabismuth Cluster Derived from a Nonabismuth Oxo/Hydroxide. *Dalton Trans.* (communication), **2008**, 5146-8.
3. Lee, T. Y.; Wooten, A.J.; Luci, J.J.; Swenson, D.C.; Messerle, L. Four-electron reduction of dinitrogen during solution disproportionation of the organodimetallic $(\eta\text{-}C_5Me_4R)(2)Ta\text{-}2(\mu\text{-}Cl)(4)$ (R = Me, Et) to a new $\mu\text{-}\eta(1)$, $\eta(1)\text{-}N_2$ complex and odd-electron organotrimetallic cluster *Chem. Commun.* **2005**, 5444-5446.
4. Thurston, J.H.; Swenson, D.C.; Messerle, L. "Solvolytic Routes to New Nonabismuth Hydroxy- and Alkoxy-oxo Complexes: Synthesis, Characterization, and Solid-State Structures of Novel Nonabismuth Polyoxo Cations $Bi_9(\mu_3\text{-}O)_8(\mu_3\text{-}OR)_6^{5+}$ (R = H, Et). *Chem. Commun.* **2005**, 4228-4230.
5. Huang, J.H.; Lee, T.Y.; Swenson, D.C.; Messerle, L. Solvolytic routes to new nonabismuth hydroxy- and alkoxy-oxo complexes: synthesis, characterization and solid-state structures of novel nonabismuth polyoxo cations $Bi\text{-}9(\mu(3)\text{-}O)(8)(\mu(3)\text{-}OR)(6)(5+)$ (R = H, Et). *Polyhedron* **2006**, *25*, 559-567. (invited)
6. Huang, J.H.; Luci, J.J.; Lee, T.Y.; Swenson, D.C.; Jensen, J.H.; Messerle, L. A Planar Tetra-coordinate Carbon and Unusual Bonding in an Organodimetallic Propynylidene Complex Arising from Double C-H Activation of an Allene Ligand. *J. Am. Chem. Soc.* **2003**, *125*, 1688-9.
7. Hay, D.N.T.; Swenson, D.C.; Messerle, L. Gallium and Gallium Dichloride, New Solid-State Reductants in Preparative Transition Metal Chemistry. New, Lower-Temperature Syntheses and Convenient Isolation of Hexatantalum Tetradecachloride Octahydrate, $Ta_6(\mu\text{-}Cl)_{12}Cl_2(OH_2)_4\cdot 4H_2O$, and Synthesis and Solid-State Structure of a Tetraalkylammonium Derivative, $[N(CH_2Ph)Bu_3]_4[Ta_6(\mu\text{-}Cl)_{12}Cl_6]$, of the Reduced $[Ta_6(\mu\text{-}Cl)_{12}]^{2+}$ Cluster Core. *Inorg. Chem.* **2002**, *41*, 4700-4707.
8. Mullan, B.F.; Madsen, M.T.; Messerle, L.; Kolesnichenko, V.; Kruger, J. X-ray Attenuation Coefficients of High Atomic Number Transition Metal Cluster Compounds: A New Paradigm for Radiographic Contrast Agents. *Acad. Radiol.* **2000**, *7*, 254-260.
9. Messerle, L. Intermolecular Vinylic C-H Bond Activation by a Doubly-Bonded Organoditantalum Complex. *J. Am. Chem. Soc.* **1987**, *109*, 6506-6508.
10. Messerle, L. Metal-Metal Bonded Dinuclear and Organodimetallic Complexes of the Early Transition Metals (Groups 4 and 5): Synthesis, Structure, and Reactivity. *Chem. Rev.* **1988**, *88*, 1229-1254 (invited)

V. Synergistic Activities (since 2000):

Scholarly Activities

1. Significant curricular contributions: (a) Designed/taught on overload basis three times the first Chemistry course, "Visualizing the Nearly Infinitesimal" in the First-Year Seminar program, for 15 freshmen, on history and approaches to molecular visualization, with facilities/instrumentation tours; (b) Designed/taught twice the overload course "Weapons of Mass Casualty/Destruction: Scientific, Ethical, and Cultural Perspectives" in the First-Year Seminar program (c) Introduced new experiments and glove box techniques in synthetic inorganic chemistry lab course for junior/senior chemistry majors, including transition metal catalyzed ROMP, sol-gel superconductor synthesis, cluster synthesis, and quadruply-bonded tungsten synthesis; (c) Revised course for graduate students, Chemical Pedagogy and Intro to Research, including (1) tours of research facilities, (2) hands-on use of SciFinder, (3) workshop on presentation strategies and mistakes, (4) grantsmanship/proposal writing, (5) ethics and plagiarism; (d) Presentations at Div. of Chem. Educ. ACS meeting of new experiments on sol-gel preparation of high T_c superconductors and metal halide clusters.
2. Contributions to increasing diversity: (a) Author of proposals to Dept. of Education's GAAAN program for minority students in graduate study. Recruiting trips to HBCU, served on Dept. GAAAN committee. (b) Mentored African-American graduate student to Ph.D. degree in organometallic chemistry, 2003. (c) Recruiting trip to native American scientific conference at Salish-Kootenai College, Poulson, MT.
3. Review of proposals for NSF: CAREER (5 in Fall 2003), International Collaboration in Chemistry (April 2009), EAGER (July 2009), standard proposals (2, Fall 2010, 2 Spring 2011)
4. Review Panel, NSF MRI Program, May 2008
5. Review Panels, NSF Chemistry postdoctoral fellowships, 2008, 2009, 2011
6. Demonstrations within the community, in nearby day-care, elementary, junior high, and high schools, two benefits for the Iowa City Science Center, and Chemistry Magic Show most falls at the Iowa City Rec Center in conjunction with Halloween activities.
7. Implemented undergraduate research project in inorganic synthesis lab course, resulting in paper (*Inorg. Chim. Acta*) with 14 undergraduates listed as authors.
8. On behalf of Department Chair, lead role in Departmental planning for \$34 million Chemistry Building renovation of teaching/research laboratories, 2004-6
9. Co-organizer (w/ M. H. Chisholm), Symposium "Dinuclear, Cluster, and Polynuclear Chemistry: Frontiers in the New Millennium", ACS National Mtg, 3/2005, Atlanta, GA
10. Review Panel, Physical Imaging, Congressionally Directed Medical Research Program, DOD Prostate Cancer Research Program, June 2006, October 2011, May 2012

VI. Engagement:

1. Symposium organizer
 - a. American Chemical Society, 231st National Meeting, Atlanta, GA, March 26-29, 2006, Symposium on "Dinuclear, Polynuclear, and Cluster Chemistry: Frontiers in the New Millennium", Co-Organizer (with Prof. M. Chisholm, The Ohio State University); solicitation of funds from industrial sponsors, preparation of PRF SE grant (funded) to cover expenses for invited international speakers; organized program; chaired two of five sessions
2. Member, Award Selection Committee, American Chemical Society Award related to Inorganic Chemistry (at invitation of President of American Chemical Society), 2003-2006
3. Member, Canvassing Committee, American Chemical Society Award in Organometallic