Curriculum Vitae

Charles S. Weinert

Department of Chemistry
Oklahoma State University
316 Physical Science
Stillwater, OK 74078

Phone: (405) 744-6543
Fax: (405) 744-6007
email:weinert@chem.okstate.edu

Current Position

Assistant Professor of Chemistry (Oklahoma State University) 8/2004-Present
Research Description: Inorganic and organometallic chemistry of the main group elements. Synthesis and characterization of novel group 2, group 14 and group 15 complexes with applications for the preparation of new electroluminescent and conductive materials.

Education

Postdoctoral Research Fellow (Purdue University) 2/2001-7/2004
Research Supervisor: Prof. Ian P. Rothwell
Project Title: Synthesis of group 5 and 14 aryloxide and binaphthoxide complexes with applications for catalytic asymmetric hydrogenation and as precursors for new materials.

Ph. D., Inorganic Chemistry (Northwestern University) 3/98 – 12/2000
Cumulative GPA: 4.0/4.0
Research Supervisor: Prof. Duward F. Shriver
Dissertation Title: Synthesis and Substitution Chemistry of Clusters Containing the $\{W_6Cl_8\}^{4+}$ Core.

M. S., Inorganic Chemistry (University of Chicago) 9/96 – 2/98
Cumulative GPA: 3.2/4.0
Research Supervisor: Prof. Lawrence R. Sita
Project Title: Synthesis of group 14 clusters and catenated compounds containing germanium, tin, and lead.

B. S., Chemistry (University of Michigan) 9/90 – 8/95
Cumulative GPA: 3.6/4.0
Research Supervisor: Prof. Arthur J. Ashe, III
Thesis Title: Preparation and Properties of 2,2',5,5'-Tetramethyl-1,1'-distibaferrocene
Graduated with Distinction

Research Experience

Postdoctoral research: Synthetic Metallo-Organic Chemistry, Catalysis

- Synthesis of group 5 complexes containing resolved 3,3'-disubstituted-1,1'-bi-2,2'-naphthoxide ligands.
- Alkylation of these chiral group 5 compounds and subsequent conversion to hydride complexes; investigation of potential applications for catalytic asymmetric hydrogenation.
- Synthesis and characterization of novel germanium (II) binaphthoxide and aryloxide complexes.
- Development of catalytic silylation reactions using group 12 and 14 metal bissilylamido reagents.

Ph. D. Research: Inorganic Cluster Chemistry and Materials Science

- Solid state synthesis of tungsten, niobium, and tantalum halide cluster compounds.
- Design of methods for the preparation of lightly coordinated tungsten clusters containing the $\{W_6Cl_8\}^{4+}$ core leading to new axially-substituted clusters containing halide, pseudohalide, and organometallic ligands.
- Preparation, substitution chemistry, and electrochemistry of niobium and tantalum clusters containing the $\{M_6X_{12}\}^{n+}$ (X = Cl or Br; n = 2-5) core by solid state synthesis, bulk electrolysis, and solution chemistry.
- Characterization of cluster complexes by X-ray crystallography, ^{183}W NMR spectroscopy, vibrational spectroscopy, and X-ray photoelectron spectroscopy.

M. S. Research: Main Group Organometallic Chemistry

- Heterocumulene metathesis reactions of germanium, tin, and lead bisamido compounds with carbon dioxide and organic isocyanates, resulting in the formation of novel oxo-bridged group 14 dimers and conversion of the organic substrates to carbodimides.
- Synthesis of a novel lead (II) oxo cluster containing seven lead atoms; characterization by NMR spectroscopy (^1H, ^{13}C, and ^{207}Pb) and X-ray crystallography.
- Preparation of a tristannane compound containing three diastereomers via multistep synthesis; structure elucidation by ^1H, ^{13}C, ^{119}Sn, and ^1H-detected ^{119}Sn-HMQC NMR spectroscopy.
- Design and synthesis of chiral end-capping groups for the formation of diastereometic oligostannanes.

B. S. Research: Organic and Organometallic Chemistry

- Synthesis of 1,1'-diheteroferrocene compounds by multistep synthesis.
- Preparation of a series of group 15 heterolyl anions; characterization by NMR (^1H, ^{13}C, ^{31}P, and ^7Li) spectroscopy.

Teaching Experience

Purdue University, West Lafayette, Indiana

3/2002 Assistant Lecturer for a graduate-level descriptive inorganic chemistry course.

Northwestern University, Evanston, Illinois

9/98 – 5/2000 Teaching Assistant for undergraduate general chemistry lecture courses.

University of Chicago, Chicago Illinois

4/97 – 6/97 Teaching Assistant for an undergraduate inorganic chemistry laboratory course.

1/97 – 3/97 Teaching Assistant for an undergraduate inorganic chemistry lecture course.

9/96 – 12/96 Teaching Assistant for an undergraduate general chemistry laboratory course.

Presentations

- **American Chemical Society 227th National Meeting**
  (Anaheim, CA, April 2004)
  "Preparation and Structures of Mixed Germanium/Alkali Metal Cage Complexes Containing Bridging Aryloxide Ligands. Metal Dependent π-Arene Interactions." Charles S. Weinert and Ian P. Rothwell.
- **American Chemical Society 227th National Meeting**
  (Anaheim, CA, April 2004)
  "Synthesis, Structure, and Reactivity of Germanium(II) Aryloxide Complexes." Charles S. Weinert, Ian P. Rothwell, and Andrew E. Fenwick.
- **Gordon Research Conference – Inorganic Chemistry**
  (Salve Regina University, Newport, RI, July, 2002)
  "Novel Germanium (II) Aryloxide and Binaphthoxide Complexes." Charles S. Weinert and Ian P. Rothwell.
- **American Chemical Society 223rd National Meeting**
  (Orlando, FL, April, 2002)
  "Isolation and Chemistry of Tantalum(V) Compounds Containing Two Resolved 3,3'-Disubstituted-1,1'-bi-2,2'-naphthoxide Ligands." Charles S. Weinert and Ian P. Rothwell.
- **American Chemical Society 222nd National Meeting**
  (Chicago, IL, August, 2001)
  "New Chiral Derivatives and Chemistry of Group 4 and 5 Metals." Scott W. Schweiger, Matthew G. Thorn, Charles S. Weinert, and Ian P. Rothwell.
- **American Chemical Society 218th National Meeting**
  (New Orleans, LA, August, 1999)
  "Synthesis, Characterization, and Substitution Chemistry of $[Bu_4N]_2[W_6Cl_8(OSO_2CF_3)_6]$. A Versatile Precursor for Axially Substituted Clusters Containing the $\{W_6Cl_8\}^{4+}$ Core." Charles S. Weinert, Nicholas Prokopuk, and Duward F. Shriver.

- **American Chemical Society 213th National Meeting**
  (San Francisco, CA, April, 1997)
  "New Classes of Monomeric and Dimeric Tin(II) Alkoxides and Amides." Rimo Xi, Jason R. Babcock, Charles S. Weinert, and Lawrence R. Sita.

Publications

1. Charles S. Weinert, Ilia A. Guzei, Arnold L. Rheingold, and Lawrence R. Sita* "Heterocumulene Metathesis of $Pb[N(SiMe_3)_2]_2$. High-Yield Syntheses of the Heteroleptic Dimer $\{Pb[N(SiMe_3)_2](\mu\text{-}OSiMe_3)\}_2$ and the Novel Lead(II) Oxo Cluster $Pb_7(\mu^3\text{-}O)(\mu^4\text{-}O)(\mu\text{-}OSiMe_3)_{10}$." *Organometallics*, **1998**, *17*, 498-500.
2. Kazusato Shibata, Charles S. Weinert, and Lawrence R. Sita* "Deconvoluting Steric and Electronic Substituent Effects on the Properties of Linear Oligostannanes: Synthesis and Characterization of a New Series Incorporating the $-{}^tBu_2Sn-$ Group." *Organometallics*, **1998**, *17*, 2241-2248.
3. Charles S. Weinert, Charlotte L. Stern, and Duward F. Shriver* "Synthesis, Characterization, and Substitution Chemistry of $[Bu_4N]_2[W_6Cl_8(OSO_2CF_3)_6]$. A Versatile Precursor for Axially Substituted Clusters Containing the $\{W_6Cl_8\}^{4+}$ Core." *Inorg. Chem.*, **2000**, *39*, 240-246.
4. Nicholas Prokopuk, Charles S. Weinert, Vance O. Kennedy, David P. Siska, Hee-Joo Jeon, Charlotte L. Stern, and Duward F. Shriver* "Synthesis and Structure of the Useful Starting Material $[Bu_4N]_3[Nb_6Cl_{12}(OSO_2CF_3)_6]$." *Inorg. Chim. Acta.*, **2000**, *300-302*, 951-957.
5. Nicholas Prokopuk, Charles S. Weinert, David P. Siska, Charlotte L. Stern, and Duward F. Shriver* "Hydrogen-Bonded Hexamolybdenum Clusters: Formation of Inorganic-Organic Networks." *Angew. Chem., Int. Ed. Engl.*, **2000**, *39*, 3312-3315.
6. Charles S. Weinert, Charlotte L. Stern, and Duward F. Shriver* "Preparation of $[Bu_4N]_2[W_6Cl_8F_6]$ and Characterization of the Clusters $[Bu_4N]_2[W_6Cl_8X_6]$ (X = F, Cl, Br, I, NCO, NCS, NCSe, or OSO_2CF_3) by ^{183}W NMR Spectroscopy." *Inorg. Chim. Acta*, **2000**, *307*, 139-143
7. Charles S. Weinert, Nicholas Prokopuk, Stephanie M. Arendt, Charlotte L. Stern, and Duward F. Shriver* "Preparation and Substitution Chemistry of $[Bu_4N]_2[W_6Cl_8(p\text{-}OSO_2C_6H_4CH_3)_6]$. A Useful Precursor for Pseudohalide, Acetate, and Organometallic Complexes Containing the $\{W_6Cl_8\}^{4+}$ Core." *Inorg. Chem.*, **2001**, *40*, 5162-5168.
8. Charles S. Weinert*, Phillip E. Fanwick, and Ian P. Rothwell* "Isolation and Chemistry of Tantalum(V) Compounds Containing Two Resolved 3,3'-Disubstituted-1,1'-bi-2,2'-naphthoxide Ligands." *Organometallics*, **2002**, *31*, 484-490.
9. Charles S. Weinert*, Phillip E. Fanwick, and Ian P. Rothwell* "Novel Germanium(II) Binaphthoxide Complexes: Synthesis and Crystal Structure of (*R, R*)-$[Ge\{OC_{20}H_{10}\text{-}(OSiMe_3)\text{-}2'\text{-}(SiMe_3)_2\text{-}3,3'\}_2]$ and (*R*)-$[Ge\{O_2C_{20}H_{10}(SiMe_2Ph)_2\text{-}3,3'\}\{NH_3\}]$; Catalytic Function of $Ge[N(SiMe_3)_2]_2$ for the Mono-Silylation of 3,3-Disubstituted-1,1'-bi-2,2'-naphthols." *J. Chem. Soc., Dalton Trans.*, **2002**, 2948-2950.
10. Charles S. Weinert*, Phillip E. Fanwick, and Ian P. Rothwell* "A Germanium-Silver Complex Containing a Ge-Ag Bond, $Ag[Ge(OC_6HPh_4\text{-}2,3,5,6)_3(AgOSO_2CF_3)]\cdot 4\ C_6H_6$." *Acta Cryst.*, **2002**, *E58*, m718-m720.

11. Charles S. Weinert*, Andrew E. Fenwick, Phillip E. Fanwick, and Ian P. Rothwell* "Synthesis, Structures, and Reactivity of Novel Germanium(II) Aryloxide and Arylsulfide Complexes." *J. Chem. Soc., Dalton Trans.*, **2003**, 532-539.
12. Charles S. Weinert*, Phillip E. Fanwick, and Ian P. Rothwell* "Synthesis and Structures of the Group 1 Metal /Germanium Cage Complexes [M(μ_2-$OC_6H_3Ph_2$-2,6)$_3$Ge] (M = Li, Na, K, Rb, Cs); Periodic Trends and Alkali Metal Dependent Arene Bonding." *J. Chem. Soc., Dalton Trans.*, **2003**, 1795-1802.
13. Charles S. Weinert*, Phillip E. Fanwick, and Ian P. Rothwell* "Synthesis of Group 1 Metal 2,6-Diphenylphenoxide Complexes [M($OC_6H_3Ph_2$-2,6)] (M = Li, Na, K, Rb, Cs) and Structures of the Solvent-Free Complexes [Rb($OC_6H_3Ph_2$-2,6)]$_x$ and [Cs($OC_6H_3Ph_2$-2,6)]$_x$: One Dimensional Extended Arrays of Metal Aryloxides." *Inorg. Chem.*, **2003**, *42*, 6089-6094.