

**WILLIAM A. HOWARD, Ph. D.**

Associate Professor of Chemistry
Department of Chemistry & Biochemistry
University of Alaska Fairbanks
900 Yukon Drive
Fairbanks, AK 99775-6160

Work Phone: (907) 474-6019
Cell Phone: (907) 388-7814
FAX: (907) 474-5640
Email: wahoward@alaska.edu

EDUCATION

University of California	Berkeley, CA	Organometallics	Postdoc, 1997
Columbia University	New York, NY	Inorganic Chemistry	PhD, 1995
Tulane University	New Orleans, LA	Chemistry	BS, 1990

APPOINTMENTS

Associate Professor	University of Alaska	Fairbanks, AK	2008 – Present
Assistant Professor	University of Alaska	Fairbanks, AK	2001 – 2008
Visiting Assistant Professor	University of Toledo	Toledo, OH	1999 – 2001
Associate Research Chemist	Shell Chemical Co.	Houston, TX	1997 – 1999

MAJOR RESEARCH ACCOMPLISHMENTS

- First chemist to isolate and fully characterize a highly reactive terminal zirconium-oxo complex.
- First chemist to prepare a terminal metal-oxo complex by treating a terminal metal-tellurido precursor with nitrous oxide. (I discovered this reaction!)
- Isolated and fully characterized the four series of complexes:
(η^5 -C₅(CH₃)₄R)₂M(E)(NC₅H₅) (R = CH₃, CH₂CH₃; M = Zr, Hf; E = O, S, Se, Te).
These compounds were the first complete series of terminal metal-chalcogenido complexes to be structurally characterized by single crystal X-ray diffraction.
- First chemist to isolate and fully characterize a non-classical d⁰ zirconium carbonyl complex with a terminal multiple-bonded chalcogenido ligand.

PEER-REVIEWED PUBLICATIONS

Link to Google Scholar Full Publication Page: [Google Scholar](#)

1. “Anticancer Structure-Activity Relationship in Well-Characterized Pt(IV) Compounds: Pt(CH₃)₂I₂{6,6’-dimethyl-2,2’-bipyridine} Cytotoxicity Against Colon and Ovarian Carcinoma Cell Lines.” Stitz, Shadrach; Howard, William A.; Wheeler, Kraig A.; Ganesan, Natarajan; Churchill, David G. *Crystals* **2026**, 16(4), 263. [DOI: 10.3390/cryst16040263](https://doi.org/10.3390/cryst16040263)
2. “Synthesis, Structure, and Anticancer Activity of a Dinuclear Organoplatinum(IV) Complex Stabilized by Adenine.” O’Brien, Alisha M.; Wheeler, Kraig A.; Howard, William A. *Compounds* **2025**, 5(2), 16. <https://doi.org/10.3390/compounds5020016>
(New paper)
3. “Anticancer Activity of Nonpolar Pt(CH₃)₂I₂{*bipy*} is Found to be Superior among Four Similar Organoplatinum(IV) Complexes.” Arabi, Ameneh; Cogley, Marcus O.; Fabrizio, Daniel; Stitz, Shadrach; Howard, William A.; Wheeler, Kraig A. *J. Mol. Struct.* **2023**, 1274(part 1), 134551. <https://doi.org/10.1016/j.molstruc.2022.134551>

6 Citations (September 9, 2025)

4. “On the Reaction between Rhodium(III) Bromide Dihydrate with Diphenylphosphine: Crystal and Molecular Structures of *Trans*-Bromotetrakis(diphenylphosphine)hydridorhodium(III) Bromide, *Trans*-Dibromotetrakis(diphenylphosphine)rhodium(III) *Trans*-Tetrabromobis(diphenylphosphine)rhodate(III), and *Mer*-Tribromotris(diphenylphosphine)rhodium(III).” Howard, William A.; Wheeler, Kraig A.; Buccella, Daniela *J. Mol. Struct.* **2020**, *1220*, 128750. **0 Citations (September 9, 2025)**
5. “Enhanced Nucleophilic Substitution with Coordinated 4,4'-Dichloro-2,2'-Bipyridine: X-ray Structures of 4,4'-Dichloro-2,2'-bipyridine (bipy-Cl₂), *Cis*-dichlorobis(4,4'-dichloro-2,2'-bipyridine)rhodium(III) Hexafluorophosphate [Rh](PF₆), and Tris(4,4'-dichloro-2,2'-bipyridine)ruthenium(II) Hexafluorophosphate [Ru](PF₆)₂.” Adamczak, Ashley K.; Howard, William A.; Wheeler, Kraig A. *J. Mol. Struct.* **2019**, *1184*, 157-62. **1 Citation (September 9, 2025)**
6. “The X-Ray Structure and Spectroscopic Characterization of [Zn(H₂O)₆][{Zn(H₂O})₂(ttha)] · 4 H₂O (ttha = Triethylenetetraamine-N,N,N',N'',N''',N''''-hexaacetate).” Carlson, Z. A.; Harrod, Bronwyn L.; Widener, Daniel; Howard, William A.; Pang, K. *J. Chem. Crystallogr.* **2010**, *40*, 863-66.
4 Citations (September 9, 2025)
7. “Structural and Spectroscopic Characterization of *Mer*-[RhBr₃(Me₂pzH)₃] (Me₂pzH = 3,5-Dimethylpyrazole); Interpreting the Results with Density Functional Theory Calculations” Abrahams, Max M.; Cushing, Gregory W.; Pickett, Zachary N.; Howard, William A.; Wheeler, Kraig A. *J. Chem. Crystallogr.* **2010**, *40*, 583-90. **3 Citations (September 9, 2025)**
8. “Spectroscopic and Structural Characterization of Na₂[(VO)₂(ttha)] · 8 H₂O (ttha = Triethylenetetraamine-N,N,N',N'',N''',N''''-hexaacetate); Interpreting the Results with Density Functional Theory” Pickett, Zachary N.; Howard, William A.; Pang, Keliang *Polyhedron* **2010**, *29*, 521-29. **3 Citations (September 9, 2025)**
9. “4-Chloro-2,6-bis(hydroxymethyl)pyridinium chloride and 4-dimethylamino-2,6-bis(hydroxymethyl)pyridinium chloride hemihydrate.” Pickett, Zachary N.; Howard, William A.; Graves, Christopher R. *J. Chem. Crystallogr.* **2008**, *38*, 717-21. **1 Citation (September 9, 2025)**
10. “*Mer*-[MCl₃(Me₂pzH)₃] (M = Rh, Ir; Me₂pzH = 3,5-Dimethylpyrazole): X-Ray Structures, Spectroscopic Properties, and Density Functional Theory (DFT) Calculations.” Cushing, Gregory W.; Howard, William A.; Pang, Keliang *J. Mol. Struct.* **2006**, *797*, 165-73. **7 Citations (September 9, 2025)**
11. “Aqueous Acid – Base Chemistry Involving Dioxovanadium(V) Complexes of 2,6-Pyridinedimethanol, and the X-Ray Structures of Na[VO₂{2,6-(OCH₂)₂NC₅H₃}] · 4 H₂O and [1-H-2,6-(HOCH₂)₂NC₅H₃]⁺Cl⁻.” Fites, R. J.; Yeager, A. T.; Sarvela, T. L.; Howard, W. A.; Zhu, G.; Pang, K. *Inorg. Chim. Acta* **2006**, *359*, 248-56. **20 Citations (September 9, 2025)**

12. "The Relationship between Balancing Reactions and Reaction Lifetimes: A Consideration of the Potassium – Argon Radiometric Method for Dating Minerals." Howard, W. A. *J. Chem. Educ.* **2005**, *82*, 1094-98.
3 Citations (September 9, 2025)
13. "Syntheses and Characterization of Some Chloro, Methoxy, and Mercapto Derivatives of $[\text{Ru}(\eta^2\text{-}2,2'\text{-bipyridine})_3]^{2+} 2 \text{PF}_6^-$: Crystal and Molecular Structures of $[\text{Ru}(\eta^2\text{-}2,2'\text{-bipyridine})_2(\eta^2\text{-}4,4'\text{-(X)}_2\text{-}2,2'\text{-bipyridine})]^{2+} 2 \text{PF}_6^-$ (X = Cl, OCH₃)." Hansen, Lars E.; Glowacki, Emily R.; Arnold, Danielle L.; Chi, Bongchu; Bernt, George J.; Fites, Raena J.; Freeburg, Ruth A.; Rothschild, Roger F. N.; Krieg, Maggie C.; Howard, William A.; Tanski, Joseph M. *Inorg. Chim. Acta* **2003**, *348*, 91-96. **16 Citations (September 9, 2025)**
14. "The Synthesis of Olefin, Carbonyl, and Thiolate Complexes of Platinum (IV) in the $[(\eta^5\text{-C}_5\text{Me}_5)\text{Pt(IV)}]$ System. Crystal and Molecular Structure of $(\eta^5\text{-C}_5\text{Me}_5)\text{PtMe}_2[\text{S}(p\text{-MeC}_6\text{H}_4)]$." Howard, William A.; Bergman, Robert G. *Polyhedron* **1998**, *17*, 803-10. **22 Citations (September 9, 2025)**
15. "Terminal Chalcogenido Complexes of Zirconium: Syntheses and Reactivity of $\text{Cp}^*_2\text{Zr(E)(NC}_5\text{H}_5)$ (E = O, S, Se, Te)." Howard, William A.; Trnka, Tina, M.; Waters, Marcey; Parkin, Gerard *J. Organomet. Chem.* **1997**, *528*, 95-121.
89 Citations (September 9, 2025)
16. "Syntheses of the Phenylchalcogenolate Complexes $(\eta^5\text{-C}_5\text{Me}_5)_2\text{Zr(EPh)}_2$ (E = O, S, Se, Te) and $(\eta^5\text{-C}_5\text{H}_5)_2\text{Zr(OPh)}_2$: Structural Comparisons within a Series of Complexes Containing Zirconium - Chalcogen Single Bonds." Howard, William A.; Trnka, Tina M.; Parkin, Gerard *Inorg. Chem.* **1995**, *34*, 5900-09.
126 Citations (September 9, 2025)
17. "Synthesis and Structure of $(\eta^5\text{-C}_5\text{Me}_5)_2\text{Zr(Se)(CO)}$, a Nonclassical d^0 Zirconium Carbonyl Complex." Howard, William A.; Trnka, Tina M.; Parkin, Gerard *Organometallics* **1995**, *14*, 4037-39. **32 Citations (September 9, 2025)**
18. "Non-Classical Carbonyl Complexes of Zirconium: the Syntheses, Characterization, and Reactivities of $(\eta^5\text{-C}_5\text{Me}_5)_2\text{Zr}(\eta^2\text{-E}_2)(\text{CO})$ (E = S, Se, Te)." Howard, William A.; Parkin, Gerard; Rheingold, Arnold L. *Polyhedron* **1995**, *14*, 25-44. **53 Citations (September 9, 2025)**
19. "Multiple Bonds between Hafnium and the Chalcogens: Syntheses and Structures of the Terminal Chalcogenido Complexes $(\eta^5\text{-C}_5\text{Me}_4\text{R})_2\text{Hf(E)(NC}_5\text{H}_5)$ (E = O, S, Se, Te)." Howard, William A.; Parkin, Gerard *J. Organomet. Chem.* **1994**, *472*, C1-C4. **38 Citations (September 9, 2025)**
20. "Terminal Oxo, Sulfido, Selenido, and Tellurido Complexes of Zirconium, $(\eta^5\text{-C}_5\text{Me}_4\text{R})_2\text{Zr(E)(NC}_5\text{H}_5)$: Comparison of Terminal Zr–E Single and Zr=E Double Bond Lengths." Howard, William A.; Parkin, Gerard *J. Am. Chem. Soc.* **1994**, *116*, 606-15. **189 Citations (September 9, 2025)**
21. "Terminal Zirconium Oxo Complexes: Synthesis, Structure, and Reactivity of $(\eta^5\text{-C}_5\text{Me}_4\text{R})_2\text{Zr(O)(NC}_5\text{H}_4\text{R}')$." Howard, William A.; Waters, Marcey; Parkin, Gerard *J. Am. Chem. Soc.* **1993**, *115*, 4917-18. **108 Citations (September 9, 2025)**
22. "Interconversion of Hydrosulfido and Sulfido Ligands in Permethylzirconocene Complexes." Howard, William A.; Parkin, Gerard *Organometallics* **1993**, *12*, 2363-66. **39 Citations (September 9, 2025)**

23. "Hydrogen Bonding of Water to the Hydroxo Ligands of Cp*₂Zr(OH)₂: Implications for Proton and Oxygen Exchange Processes: the Crystal and Molecular Structure of the Hydrate Cp*₂Zr(OH)₂ • (H₂O)." Howard, William A.; Parkin, Gerard *Polyhedron* **1993**, *12*, 1253-56. **9 Citations (September 9, 2025)**
24. "Persistent Triplet Diradicals from the Dimerization of Silacyclobutadienes." Gee, Jason R.; Howard, William A.; McPherson, Gary L.; Fink, Mark J. *J. Am. Chem. Soc.* **1991**, *113*, 5461-62. **16 Citations (September 9, 2025)**

FUNDING

1. Howard, William A. **Organoplatinum(IV) Drugs for Treating Kidney Cancer.** 2024 Arctic Fellows Award. \$10,000. July 15, 2024 to December 31, 2024.
2. Howard, William A. **New Platinum-Based Chemotherapy Drugs.** Undergraduate Research & Scholarly Activities. \$1153.00. May 10, 2022.
3. Howard, William A. **Development of Two Types of Platinum-Based Drugs for Destroying Human Leukemia Cells.** UNAC Faculty Initiative Fund. \$10,000. July 1, 2019 to June 30, 2020.
4. Howard, William A. **Creation and Development of Novel Organometallic Platinum Compounds as Anti-Tumor Drugs.** Schwan Health Sciences Fellowship. \$8662.53. Fall 2016 to Spring 2017. Final report submitted 06/30/17.

INVITED LECTURES

1. **The Beginning of Inorganic Oncology at UAF.** Korean Advanced Institute of Science & Technology, Daejeon, South Korea; October 29, 2018.
2. **Basic Coordination Chemistry Involving Ruthenium-Tris(Bipyridyl) Derivatives and Diphenylphosphine Complexes of Rhodium(III).** Korean Advanced Institute of Science & Technology, Daejeon, South Korea; October 31, 2018.

HONORS AND AWARDS

1. Outstanding Senate Service of the Year Award, UAF Faculty Senate, 2024 – 2025 Academic Year.
2. 2019-2020 Inspiration Award for the Best Faculty Invention Disclosure (Innovative Disclosures and Entrepreneurial Activities (IDEA) Award). The award was given for Prof. Wendy Croskrey's submission "Spruce Sap Extrusion Wax." My role was to extract wax from clay samples with benzene and to characterize the wax samples by NMR spectroscopy.
3. **\$1000 Honorarium as Discovering, Engaging, Empowering Program (DEEP) Speaker.** Korean Advanced Institute of Science & Technology, Daejeon, South Korea; November 2, 2018.
4. Nominated for Robert Piacenza Excellence in Teaching Award by the UAF Honors Program; Spring 2016.
5. **CNSM Outstanding Teacher Award;** Spring 2015.

PROFESSIONAL ORGANIZATIONS

Active member of the American Association for Cancer Research	2023
Sigma Xi, Associate Member	2024

GRADUATE STUDENTS

1. Scot Baer, University of Alaska Fairbanks, MS with Project (2025)

2. Shadrach Stitz, University of Alaska Fairbanks, BS/MS (2025)
3. Marcus O. Cogley, University of Alaska Fairbanks, MS (2024)
4. Ameneh Arabi, University of Alaska Fairbanks, PhD (2022)
5. Zachary N. Pickett, University of Alaska Fairbanks, MS (2012)
6. Ashley K. Anderson, University of Alaska Fairbanks, MS (2010)

COURSES TAUGHT

1. Advanced inorganic chemistry for 1st year graduate students
2. Senior level biological inorganic chemistry
2. Senior level inorganic chemistry (lecture only)
3. Advanced undergraduate laboratory
4. Physical chemistry (Quantum mechanics and spectroscopy)
5. Organic chemistry (1st semester)
6. Sophomore level introduction to bioinorganic chemistry (lecture only)
7. Sophomore level inorganic chemistry (lecture & lab)
8. General chemistry (1st and 2nd semesters)

UNDERGRADUATE ADVISING

Extensive experience advising undergraduate chemistry majors and undergraduate general studies students.