

HENRY STORMS LA PIERRE

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Georgia Institute of Technology
School of Chemistry and Biochemistry
School of Mechanical Engineering and the
Nuclear and Radiological Engineering and
Medical Physics Program

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Professional Appointments

Assistant Professor, **Georgia Institute of Technology** – Atlanta, GA USA 2016 –
Director's PD Fellow, **Los Alamos National Laboratory** – Los Alamos, NM USA 2014 – 2016
Postdoctoral Scholar, **Friedrich-Alexander University** – Erlangen-Nuremberg, DE 2011 – 2014

Education

Ph.D., Inorganic Chemistry, **University of California** – Berkeley, CA USA 2006 – 2011
A.B., *magna cum laude*, Chemistry, **Harvard University** – Cambridge, MA USA 2002 – 2006

Research Experience

Los Alamos National Laboratory – with **Dr. Stosh A. Kozimor** 2014 – 2016
Friedrich-Alexander University – Erlangen-Nuremberg – with **Prof. Dr. Karsten Meyer** 2011 – 2014
University of California – Berkeley – with **Prof. John Arnold** 2006 – 2011
Co-Advised with **Prof. F. Dean Toste** and **Prof. Robert G. Bergman**
Kyoto University – with **Prof. Masahiro Murakami** 2005 – Sum.
Broad Institute of MIT and Harvard – with **Prof. Jared T. Shaw** (curr. UC – Davis) 2004 – 2006

Awards

ORAU: Ralph E. Powe Junior Faculty Enhancement Award 2018
Arnold and Mabel Beckman Young Investigator Award 2018 – 2022
Blanchard Assistant Professorship – Georgia Institute of Technology 2018 – 2020
Director's Postdoctoral Fellowship – Los Alamos National Laboratory – Los Alamos, NM 2014 – 2016
Poster Prize – *European f-Element Chemistry Conference* – Nürnberg, DE 2014
William G. Dauben Memorial Fellowship – Berkeley 2009 – 2010
Outstanding Graduate Student Instructor Award in Chemistry 3a, Spring 2008 – Berkeley 2009
National Science Foundation (NSF) Pre-Doctoral Fellowship 2006 – 2011
Herchel Smith Harvard Summer Undergraduate Research Fellowship – Kyoto University 2005
National Merit Scholar 2002

Publications

27. Ningxin Jiang, Arun Ramanathan, John Bacsá, and **Henry S. La Pierre**,* “Synthesis of a Structurally Perfect d^1 Kagome Lattice Antiferromagnet, $(\text{MA})_2\text{NaTi}_3\text{F}_{12}$,” **Submitted**, posted on ChemRxiv: DOI: 10.26434/chemrxiv.9764924.v1.
26. Ningxin Jiang and **Henry S. La Pierre**,* “Frustrated Magnetism in a 2-D Ytterbium Fluoride,” *Inorg. Chem.*, **Accepted**, DOI: 10.1021/acs.inorgchem.9b01489.
25. Natalie T. Rice, Ivan A. Popov, Dominic R. Russo, John Bacsá, Enrique R. Batista, Ping Yang, Joshua Telser, and **Henry S. La Pierre**,* “Design, Isolation, and Spectroscopic Analysis of a Tetravalent Terbium Complex,” *J. Am. Chem. Soc.*, **2019**, *141*, 33, 13222-13233.
24. Ningxin Jiang, Xiaojin Bai, John Bacsá, Martin Mourigal, and **Henry S. La Pierre**,* “Synthesis and Magneto-Structural Characterization of $\text{Yb}_3(\text{OH})_7\text{SO}_4\cdot\text{H}_2\text{O}$: a Frustrated Quantum Magnet with Tunable Stacking Disorder,” *Inorg. Chem.*, **2019**, *58*, 15, 10417-10423.

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Publications – Continued

23. Thaige P. Gompa, Natalie T. Rice, Dominic R. Russo, Luis M. Aquirre-Quintana, Bradon J. Yik, John Bacsa, and **Henry S. La Pierre**,* “Diethyl Ether Adducts of Trivalent Lanthanide Iodides,” *Dalton Trans.*, **2019**, 48, 8030-8033.
22. Natalie T. Rice, Jing Su, Thaige P. Gompa, Dominic R. Russo, Joshua Telser, Lukas Palatinus, John Bacsa, Ping Yang, Enrique R. Batista, and **Henry S. La Pierre**,* “Homoleptic Imidophosphorane Stabilization of Tetravalent Cerium,” *Inorg. Chem.*, **2019**, 58, 8, 5289-5304.
21. Jing Su, Enrique R. Batista, Sharon E. Bone, Kevin S. Boland, Joseph A. Bradley, Samantha K. Cary, David L. Clark, Steven D. Conradson, Alex S. Ditter, Jason M. Keith, Andrew Kerridge, Matthias W. Loeble, Richard L. Martin, Stefan G. Minasian, Veronika Mocko, **Henry S. La Pierre**, Nikolas Kaltsoyannis, Stosh A. Kozimor, Marianne P. Wilkerson, Laura E. Wolfsberg, Gerald T. Seidler, David K. Shuh, Ping Yang, “Energy Degeneracy Driven Covalency in Actinide Bonding,” *J. Am. Chem. Soc.*, **2018**, 140, 51, 17977-17984.
20. Megan E. Fieser, Chad T. Palumbo, **Henry S. La Pierre**, Dominik P. Halter, Vamsee K. Voora, Joseph, W. Ziller, Filipp Furche, Karsten Meyer, and William J. Evans, “Comparisons of Lanthanide / Actinide +2 Ions in a Tris(aryloxide)arene Coordination Environment,” *Chem. Sci.*, **2017**, 8(11), 7424-7433.
19. Ralph Zehnder, James Boncella, Justin N. Cross, Stosh A. Kozimor, Marissa Monreal, **Henry S. La Pierre**, Brian Scott, Aaron Tondreau, Matthia Zeller, “Network Dimensionality of Selected Uranyl(VI) Coordination Polymers and Octopus like Uranium(IV) Clusters,” *Cryst. Eng. Comm.*, **2017**, 17(10), 5568-5582.
18. John J. Kiernicki, Maryline G. Ferrier, Juan S. Lezama Pacheco, **Henry S. La Pierre**, Benjamin W. Stein, Matthias Zeller, Stosh A. Kozimor, Suzanne C. Bart, “Examining the Effects of Ligand Variation on the Electronic Structure of Uranium Bis(imido) Species,” *J. Am. Chem. Soc.*, **2016**, 138 (42), 13941-13951.
17. Christopher J. Hörger, **Henry S. La Pierre**,* Frank W. Heinemann, Laurent Maron, Andreas Scheurer, and Karsten Meyer, “Uranium(III) Reductive Disproportionation of Nitric Oxide,” *Chem. Commun.*, **2016**, 52 (72), 10854-10857 *Corresponding Author; 1st Contribution from Georgia Tech.
16. Maryline G. Ferrier, Enrique R. Batista, John M. Berg, Eva R. Birnbaum, Justin N. Cross, Jonathan W. Engle, Stosh A. Kozimor, **Henry S. La Pierre**, Juan S. Lezama Pacheco, Benjamin W. Stein, S. Chantal E. Stieber, Justin J. Wilson, “Spectroscopic and Computational Investigation of Actinium Coordination Chemistry,” *Nat. Commun.*, **2016**, 7, 12312.
15. Samantha K. Cary, Maryline G. Ferrier, Stosh A. Kozimor, Ryan E. Baumbach, Mark A. Silver, Juan S. Lezama Pacheco, **Henry S. La Pierre**, Benjamin W. Stein, Alexandra A. Arico, Danielle L. Gray, and Thomas E. Albrecht-Schmitt, “Monomers, Dimers, and Helical Chains: Complexities of Cerium and Plutonium Phenanthrolinecarboxylates,” *Inorg. Chem.*, **2016**, 55 (9), 4373-4380.
14. **Henry S. La Pierre**,* Michael Rosenzweig, Boris Kosog, Christina Hauser, Frank W. Heinemann, Stephen T. Liddle, and Karsten Meyer, “Charge Control of the Inverse *trans*-Influence,” *Chem. Commun.*, **2015**, 51, 16671-16674, *Corresponding Author.
13. Dominik P. Halter, **Henry S. La Pierre**, Frank W. Heinemann, and Karsten Meyer, “Uranium(IV) Halide (F⁻, Cl⁻, Br⁻, and I⁻) Monoarene Complexes,” *Inorg. Chem.*, **2014**, 53 (16), 8418–8424.

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Publications – Continued

12. **Henry S. La Pierre**, Andreas Scheurer, Frank W. Heinemann, Wolfgang Hieringer, and Karsten Meyer, “Synthesis and Characterization of a Uranium(II) Monoarene Complex Supported by δ Backbonding,” *Angew. Chem., Int. Ed.*, **2014**, 53 (28), 7158–7162.
11. **Henry S. La Pierre**, Hajime Kameo, Dominik P. Halter, Frank W. Heinemann, and Karsten Meyer, “Coordination and Redox Isomerization in the Reduction of a Uranium(III) Monoarene Complex,” *Angew. Chem., Int. Ed.*, **2014**, 53 (28), 7154–7157.
10. **Henry S. La Pierre**, Frank W. Heinemann, and Karsten Meyer, “Well-Defined Molecular Uranium(III) Chloride Complexes,” *Chem. Commun.*, **2014**, 50 (30), 3962–3964.
9. **Henry S. La Pierre** and Karsten Meyer, “Activation of Small Molecules by Molecular Uranium Complexes,” *Prog. Inorg. Chem.*, **2014**, 58, 303–415.
8. **Henry S. La Pierre**, Stefan G. Minasian, Mark Abubekurov, Stosh A. Kozimor, David K. Shuh, Tolek Tyliczszak, John Arnold, Robert G. Bergman, and F. Dean Toste, “Vanadium Bisimide Bonding Investigated by X-ray Crystallography, ^{51}V and ^{13}C Nuclear Magnetic Resonance Spectroscopy, and V $L_{3,2}$ -Edge X-ray Absorption Near-Edge Structure Spectroscopy,” *Inorg. Chem.*, **2013**, 52 (19), 11650–11660.
7. Thomas L. Gianetti,⁺ **Henry S. La Pierre**,⁺ and John Arnold, “Group 5 Imides and Bis(imides) as Selective Hydrogenation Catalysts,” *Eur. J. Inorg. Chem.*, **2013**, 22-23, 3771–3783. ⁺Co-first authors.
6. **Henry S. La Pierre** and Karsten Meyer, “Uranium-Ligand Multiple Bonding in Uranyl Analogues, $[\text{L}=\text{U}=\text{L}]^{n+}$, and the Inverse *trans*-Influence,” *Inorg. Chem.*, **2013**, 52 (2), 529–539.
5. **Henry S. La Pierre**, John Arnold, Robert G. Bergman, and F. Dean Toste, “Carbon Monoxide, Isocyanide, and Nitrile Complexes of a d^0 Vanadium Bisimide: π Back-Bonding Derived from the π Symmetry Bisimido Ligand Orbitals,” *Inorg. Chem.*, **2012**, 51 (24), 13334–13344.
4. Boris Kosog, **Henry S. La Pierre**, Melissa A. Denecke, Frank W. Heinemann, and Karsten Meyer, “Oxidation State Delineation via U L_{III} -Edge XANES in a Series of Isostructural Uranium Coordination Complexes,” *Inorg. Chem.*, **2012**, 51 (14), 7940–7944.
3. Boris Kosog, **Henry S. La Pierre**, Frank W. Heinemann, Stephen T. Liddle, and Karsten Meyer, “Synthesis of Uranium (VI) Terminal Oxo Complexes: Molecular Geometry Driven by the Inverse *Trans*-Influence,” *J. Am. Chem. Soc.*, **2012**, 134 (11), 5284–5289.
2. **Henry S. La Pierre**, John Arnold, and F. Dean Toste, “(*Z*)-Selective, Semihydrogenation of Alkynes Catalyzed by a Cationic, Vanadium Bisimido Complex,” *Angew. Chem., Int. Ed.*, **2011**, 50 (17), 3900–3903.
1. Sameer Urgaonkar, **Henry S. La Pierre**, Israel Meir, Heinrik Lund, Debabrata RayChaudhuri, and Jared T. Shaw, “Synthesis of Antimicrobial Natural Products Targeting FtsZ: (+/-)-Dichamanetin and (+/-)-2'-hydroxy-5'-benzylisouvarinol,” *Org. Lett.*, **2005**, 7, 5609–5612.

Patents

1. Jared T. Shaw, Sameer Urgaonkar, Debrata RayChaudhuri, **Henry S. La Pierre**. “Synthesis of Inhibitors of FtsZ.” U.S. Patent Application Publication No. 2009/0221568, published 9/3/2009.

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Corresponding international patent application publications include: EP1957474 (A1); WO2007056188 (A1).

Invited Seminars

- 18–20. “Electron Delocalization in the *f*-Block,”
University of Georgia, March 4th, 2019
University of California, Irvine, February 13th, 2020
University of Southern California, February 18th, 2020
17. “Molecular, Tetravalent Lanthanide Complexes”
SERMACS, November, 2019, Augusta, GA.
16. “A History of the Valence Electronic Structure of the Actinides,”
SERMACS, November, 2019, Augusta, GA.
15. “Bulky, Weak-Field Ligand Complexes of *f*-Block Ions,”
SERMACS, November 2nd, 2018, Augusta, GA.
14. “Spectroscopic Mapping of *f*-element Magnetic Exchange,”
ORNL-GT CNMS Meeting, **Georgia Institute of Technology**, January 31st, 2017.
- 13–8. “Applications of Actinide Covalency,”
Washington State University, February 3–5, 2016
Ohio State University, January 25–27, 2016.
University of Delaware, December 15–17, 2015.
Brown University, December 2–4, 2015.
San Diego State University, November 22–24, 2015.
Georgia Institute of Technology, November 16–18, 2015.
7. “Fundamental Structure and Bonding in Actinide Complexes and Materials”
George-August-Universität Göttingen, March 25–26, 2015.
- 6–4. “Fundamental Paradigms of Structure and Reactivity in Uranium Coordination Complexes,”
University of Wyoming, January 12–15, 2014.
University of Arizona, January 7–10, 2014.
University of Iowa, December 15–17, 2013.
3. “Reduction and Oxidation Reactions of a Uranium(III) Monoarene Complex,”
University of Manchester, November 28–30, 2013.
2. “Metal-Ligand Cooperation in Catalysis, Weak-Bonding Interactions, and Low-Valent Complexes,”
Kansas State University, December 18–20, 2012.
1. “PHIP NMR Analysis of Alkyne Semihydrogenation Catalyzed by a Cationic Vanadium Bisimido Complex,” Alexander Pines Group Seminar, **University of California, Berkeley**, CA, February 12, 2010.

Contributed Seminars

6. “Weak field ligands in *f*-element chemistry,” 255th ACS National Meeting, New Orleans, LA, March 21st, 2018.

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Contributed Seminars – Continued

5. “Synthesis, Structure, and Electronic Spectroscopy of Actinide Complexes and Materials,” 250th ACS National Meeting, Boston, MA, August 19th, 2015.
4. “Catalytic Hydrogenation of Alkynes by a Cationic Vanadium Bisimido Complex,” 239th ACS National Meeting, San Francisco, CA, March 24, 2010.
3. “Synthesis of a Cationic Vanadium Bisimido Complex and its Reversible Addition of H₂,” International Symposium on Bio-Environmental Chemistry, Osaka University, Osaka, JP, December 19-20, 2009.
2. “Synthesis of Vanadium Bisimido Complexes: Progress Towards a C-H Bond Functionalization Reaction,” UC-Berkeley Graduate Research Seminar Series, University of California, Berkeley, CA, January 24, 2008.
1. “Synthesis and Thermal Ring-opening Reaction of 3-(1-silacyclobutyl)cyclobutene,” Herchel Smith Undergraduate Science Research Symposium, Harvard University, Cambridge, MA, February 27, 2006.

Poster Presentations

11. “Lanthanide and Actinide Imidophosphorane Chemistry: Molecular Models of Mixed-Valent *f*-Element Materials,”
Henry S. La Pierre, Natalie T. Rice, Thaige P. Gompa, Dominic P. Russo, Joshua Telser, Lukas Palatinus, John Bacsa, Plutonium Futures 2018 – The Science, San Diego, California, September 9th – 14th, 2018.
10. “*f*-Block Material Design Driven by Control of *f*- and *d*-Orbital Covalency,”
Ningxin Jiang, Xiaojian Bai, John Bacsa, Martin Mourigal, and **Henry S. La Pierre**, 2018 Beckman Symposium, Irvine, CA, August 12-15th, 2018.
9. “Homoleptic Imidophosphorane Stabilization of Tetravalent Cerium,”
Henry S. La Pierre, Natalie T. Rice, Jing Su, Thaige P. Gompa, Dominic R. Russo, Joshua Telser, Lukas Palatinus, John Bacsa, Ping Yang, Enrique R. Batista, Gordon Research Conference on Inorganic Chemistry, Biddeford, Maine, June, 2018.
8. “Synthesis, Characterization, and Reactivity of a Uranium(II) Monoarene Complex,”
Henry S. La Pierre, Dominik P. Halter, Hajime Kameo, Andreas Scheurer, Wolfgang Hieringer, Frank W. Heinemann, and Karsten Meyer, Gordon Research Conference on Inorganic Chemistry, University of New England, Maine, June, 2014.
7. “Synthesis, Characterization, and Reactivity of a Uranium(II) Monoarene Complex,”
Henry S. La Pierre, Dominik P. Halter, Hajime Kameo, Andreas Scheurer, Wolfgang Hieringer, Frank W. Heinemann, and Karsten Meyer, COST Action CM1006, *European f-Element Chemistry*, EUFEN 3, Nürnberg, DE, April 12-15th, 2014. – Poster Prize.
6. “Reduction and Oxidation Reactions of a Uranium(III) Monoarene Complex,”
Henry S. La Pierre, Dominik P. Halter, Hajime Kameo, Frank W. Heinemann, and Karsten Meyer, Gordon Research Conference on Organometallics, Salve Regina University, Rhode Island, July, 2013.
5. “Group 5 Imides: Two Approaches for Directing Selective, Catalytic Hydrogenation,”
Henry S. La Pierre, Thomas L. Gianetti, Robert G. Bergman, F. Dean Toste, and John Arnold, Gordon Research Conference on Organometallics, Salve Regina University, Rhode Island, July, 2011.

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Poster Presentations – Continued

4. “Catalytic Hydrogenation *via* [1,2]-addition of H₂ to an Imido Ligand of a Cationic Vanadium Bisimido Complex,”
Henry S. La Pierre, John Arnold, and F. Dean Toste, CaRLa Winter School 2010, Catalysis Research Laboratory (CaRLa) at University of Heidelberg, Heidelberg, DE, March 6-12, 2010.
3. “Group 14 Element Substituent Effect on Cyclobutene Ring-Opening,”
Ipppei Usui, Soichiro Konno, **Henry S. La Pierre**, Munehiro Hasegawa, Masahiro Murakami, Nippon Kagakkai Koen Yokosku (Conference of the Chemical Society of Japan), Nihon University, Tokyo, JP, March 27-30, 2006.
2. “Synthesis and Thermal Ring-opening Reaction of 3-(1-silacyclobutyl)cyclobutene,”
Henry S. La Pierre, Ipppei Usui, and Masahiro Murakami, Herchel Smith Undergraduate Science Research Symposium, Harvard University, Cambridge, MA, February 27, 2006.
1. “Studies in the Synthesis and Mechanism of Action of Antimicrobial Phenolic Natural Products,”
Henry S. La Pierre, Michael L. Fingerhood, Israel Meir, and Jared T. Shaw, Gordon Research Conference on Natural Products, Tilton School, New Hampshire, July, 2004.

Teaching at Georgia Institute of Technology

| | |
|---|-------------|
| CHEM 1212K: General Chemistry II, Fall Term | 2020 |
| CHEM 8843/4803: Actinide and Radiochemistry, UG/G Spring Term | 2019 |
| CHEM 2183: Professional Preparation for Chemists, Undergraduate - Fall | 2018 |
| CHEM 6170: Advanced Inorganic Chemistry; Graduate level – Fall Term | 2016 – 2018 |
| Guest Lecturer in CHEM 6183: Organometallic Chemistry; Graduate level – Spring Term | 2018 |