Allegra L. Liberman-Martin

Assistant Professor of Chemistry and Biochemistry
Chapman University
One University Drive
Orange, CA 92866
Phone: (714) 516-5586
Email: libermanmartin@chapman.edu
Website: www.allegraliberman-martin.com

Education

University of California, Berkeley 2010 – 2015

Ph.D. in Chemistry

with Profs. T. Don Tilley and Robert G. Bergman

Lewis Acid Mediated Reactions: Electronic Modification of Platinum Complexes and Metal-Free Catalysis

Scripps College, Claremont, CA 2006 – 2010

B.A. in Chemistry, summa cum laude with honors in chemistry

with Prof. Nancy S. B. Williams (2008–2010, Scripps College)

Aryl Orientation Preferences during Reductive Elimination from Platinum Complexes

with Prof. Alan S. Goldman (Summer 2009, Rutgers University)

Iridium-Catalyzed Transfer Dehydrogenation of Cyclic Alkyl Ether Substrates

with Prof. Kathleen L. Purvis-Roberts (2007 – 2008, Scripps College)

Analysis of Amines in Air and Smog Chamber Samples by Ion Chromatography

Employment

Chapman University, Orange, CA 2018 – present

Assistant Professor of Chemistry & Biochemistry

Main Group Catalysis for Sustainable Organic and Polymer Synthesis

California Institute of Technology, Pasadena, CA 2016 – 2018

Resnick Sustainability Institute postdoctoral fellow

with Prof. Robert H. Grubbs

Investigation of Brush Polymers as Stimuli-Responsive Photonic Crystals

Publications

(14) Chu, C. K.; Lin, T.-P.; Shao, H.; **Liberman-Martin, A. L.**; Liu, P.; Grubbs, R. H. Disentangling Ligand Effects on Metathesis Catalyst Activity: Experimental and Computational Studies of Ruthenium–Aminophosphine Complexes. *J. Am. Chem. Soc.* **2018**, *140*, 5634–5643.

(13) **Liberman-Martin, A. L.**; Grubbs, R. H. Ruthenium Olefin Metathesis Catalysts Featuring a Labile Carbodicarbene Ligand. *Organometallics* **2017**, *36*, 4091–4094.

(12) Chang, A. B.; Lin, T.-P.; Thompson, N. B.; Luo, S.-X.; **Liberman-Martin, A. L.**; Chen, H.-Y.; Lee, B.; Grubbs, R. H. Design, Synthesis, and Self-Assembly of Polymers with Tailored Graft Distributions. *J. Am. Chem. Soc.* **2017**, *139*, 17683–17693.

(11) Suslick, B. A.; **Liberman-Martin, A. L.**; Wambach, T. C.; Tilley, T. D. Olefin Hydroarylation Catalyzed by (Pyridyl-Indolate)Pt(II) Complexes: Catalytic Efficiencies and Mechanistic Aspects, *ACS Catal.*, **2017**, *7*, 4313–4322.

(10) **Liberman-Martin, A. L.**; Chu, C. K.; Grubbs, R. H. Application of Bottlebrush Block Copolymers as Photonic Crystals. *Macromol. Rapid Commun.* (special issue on "Polymers and Light"), **2017**, DOI: 10.1002/marc.201700058.

- Featured in *Advanced Science News*
- A "Most Accessed" article of 2017 on the *Macromol. Rapid Commun.* website

(9) Lin, T.-P.; Chang, A. B.; Chen, H.-Y.; **Liberman-Martin, A. L.**; Bates, C. M.; Voegtle, M.; Bauer, C. A.; Grubbs, R. H. Control of Grafting Density and Distribution in Graft Polymers by Living Ring-Opening Metathesis Copolymerization. *J. Am. Chem. Soc.* **2017**, *139*, 3896–3903.

(8) Lipke, M. C.; **Liberman-Martin, A. L.**; Tilley, T. D. Electrophilic Activation of Silicon–Hydrogen Bonds in Catalytic Hydrosilations. *Angew. Chem., Int. Ed.* **2017**, *56*, 2260–2294.

(7) **Liberman-Martin, A. L.**; Levine, D. S.; Ziegler, M. S.; Bergman, R. G.; Tilley, T. D. Lewis Acid-Base Interactions between Platinum(II) Diaryl Complexes and Bis(perfluorophenyl)zinc: Strongly Accelerated Reductive Elimination Induced by a Z-Type Ligand. *Chem. Commun.* **2016**, *52*, 7039–7042.

(6) Lipke, M. C.; **Liberman-Martin, A. L.**; Tilley, T. D. Significant Cooperativity Between Ruthenium and Silicon in Catalytic Transformations of an Isocyanide. *J. Am. Chem. Soc.* **2016**, *138*, 9704–9713

(5) **Liberman-Martin, A. L.**; Ziegler, M. S.; DiPasquale, A. G.; Bergman, R. G.; Tilley, T. D. Functionalization of an Iridium–Diamidocarbene Complex by Ligand-Based Reactions with Titanocene and Zirconocene Sources. *Polyhedron* (special issue dedicated to Malcolm L. H. Green) **2016**, *116*, 111–115.

(4) **Liberman-Martin, A. L.**; Levine, D. S.; Liu, W.; Bergman, R. G.; Tilley, T. D. Biaryl Reductive Elimination Is Dramatically Accelerated by Remote Lewis Acid Binding to a 2,2′-Bipyrimidyl–Platinum Complex: Evidence for a Bidentate Ligand Dissociation Mechanism. *Organometallics* **2016**, *35*, 1064–1069.

- Featured as cover article
- A "Most Read" article from January–April 2016 on the *Organometallics* website

(3) **Liberman-Martin, A. L.**; Bergman, R. G.; Tilley, T. D. Lewis Acidity of Bis(perfluorocatecholato)silane: Aldehyde Hydrosilylation Catalyzed by a Neutral Silicon Compound. *J. Am. Chem. Soc.* **2015**, *137*, 5328–5331.

- Featured in *Synfacts*, 2015; 11(7): 0764.
- Featured in *ChemInform*, 46: DOI: 10.1002/chin.201538046

(2) **Liberman-Martin, A. L.**; Bergman, R. G.; Tilley, T. D. A Remote Lewis Acid Trigger Dramatically Accelerates Biaryl Reductive Elimination from a Platinum Complex. *J. Am. Chem. Soc.* **2013**, *135*, 9612–9615.

(1) Erupe, M. E.; **Liberman-Martin, A. L.**; Silva, P. J.; Malloy, Q. G. J.; Yonis, N.; Crocker, D. R.; Purvis-Roberts, K. L. Determination of Methylamines & Trimethylamine-N-oxide in Particulate Matter by Non-suppressed Ion Chromatography. *J. Chromatogr. A.* **2010**, *1217*, 2070–2073.

Honors and Awards

- Resnick Sustainability Institute Postdoctoral Fellowship (2016 – 2018)
- Outstanding Poster Award, Division of Polymer Chemistry, 253rd American Chemical Society National Meeting, San Francisco, CA (2017)
- Benjamin Boussert Memorial Award, UC-Berkeley, Department of Chemistry (2016)

  Award for exemplifying commitment to social or environmental change
- Margaret Jorgenson Memorial Prize Travel Grant, UC-Berkeley, Department of Chemistry (2013)
- Graduate Division Conference Travel Grant, UC-Berkeley (2013 and 2015)
- Barbara McClintock Award for Best Senior Thesis in the Sciences, Scripps College (2010)
- Phi Beta Kappa, Scripps College (2010)
- ACS Division of Inorganic Chemistry Undergraduate Award in Inorganic Chemistry (2009)
- Center for Enabling New Technologies through Catalysis Undergraduate Summer Research Fellowship, Rutgers University (2009)
- Sigma Xi Scientific Research Society, Scripps College (2008)
- Norris Foundation Summer Research Fellowship, Scripps College (2008)

Professional Activities

Professional affiliations:

- American Chemical Society
- Council on Undergraduate Research
- Phi Beta Kappa
- Sigma Xi Scientific Research Honor Society

Peer reviewer:

- *Journal of the American Chemical Society*
- *Chemical Communications*

Conference session chair: *New Synthesis & Characterization of Polymers*, Division of Polymer Chemistry, 254th American Chemical Society National Meeting, Washington DC, August 2017.

Teaching Experience

Chapman University

- CHEM 230: Organic Chemistry I — Fall 2018
- CHEM 230L: Organic Chemistry I Laboratory — Fall 2018

California Institute of Technology

- Ch101: "Revolutionary Inorganic Molecules" — 2017
- Guest Lecturer, Organic Chemistry — 2016
- Research Mentor, Jayce Miller, Undergraduate Student — 2016 – 2018

University of California, Berkeley

- Graduate Student Instructor
  - Organometallic Chemistry (Prof. T. Don Tilley) — 2011, 2015
  - NMR Spectroscopy (Dr. Chris Canlas) — 2013
  - Physical Organic Chemistry (Prof. Robert G. Bergman) — 2012
  - General Chemistry (Prof. John Arnold) — 2010
- Guest lecturer — 2011 – 2015
  - Organometallic Chemistry and Physical Organic Chemistry
- Research Mentor
  - Jana Schmitt, Visiting Graduate Student — 2013 – 2014
  - Myles Walden, High School Student — Summer 2012

Service and Outreach

Chapman University

- Co-founder and co-director of the Chemistry & Biochemistry Seminar Series — 2018 – present
- Organic Chemistry curriculum development — 2018 – present
- Invited speaker to the Chapman TriBeta Biological Honor Society — 2018
  - Presented on "Pathways to a Ph.D. in Science"

California Institute of Technology

- Speaker on "Interviewing for Faculty Positions" Panel — 2018
  - Caltech Project for Effective Teaching event
- Caltech Teaching Conference Organizing Committee — 2017
  - Facilitated a conference session on authoring problem sets and exams
- Women Mentoring Women Program — 2016 – 2018
  - Peer mentor for a female graduate student
- Safe Zone Ally — 2016 – 2018
  - Trained member of a network of Caltech faculty and staff who are openly supportive mentors for LGBTQ students.

University of California, Berkeley

- Student Chair, Chemical Sciences Division Catalysis Group, Lawrence Berkeley National Laboratory — 2013 – 2015
  - Organized a monthly interdisciplinary seminar series
- Department of Chemistry volunteer — 2010 – 2015
  - Peer advisor for first-year graduate students
  - Presenter to undergraduate chemistry students on research opportunities
  - Member of student-hosted inorganic seminar committee
  - Speaker on "Choosing a Research Group" panel (through Iota Sigma Pi, National Honor Society of Women in Chemistry)
- Bay Area Scientists in Schools classroom volunteer — 2010 – 2015
  - "Be a Scientist" pilot program mentoring 7th grade students' scientific investigations over a two-month period
  - "Science of Soap" and "Water and Carbon Dioxide" classes for 5th graders

Scripps College

- Alumna interviewer — 2012 – 2015
- Co-director of the Chemistry Mentor Program — 2009 – 2010
  - Program provided all general chemistry students with a peer mentor.
- Chemistry mentor for six general chemistry students — 2008 – 2010

Presentations

Liberman-Martin, A. L.; Grubbs, R. H. Ruthenium Olefin Metathesis Catalysts Featuring Carbodicarbene and Carbodiphosphorane Ligands. Organometallics Gordon Research Conference, Newport, RI, July 2018. (poster)

Liberman-Martin, A. L. Stimuli-Responsive Molecules: From Inorganic Complexes to Light-Reflecting Polymers. Chemistry Department Seminar, Reed College, Portland, OR, September 2017.

Liberman-Martin, A. L.; Chu, C. K.; Grubbs, R. H. Synthesis and Self-Assembly of Brush Block Copolymers with Low T_g Side Chains. 254th American Chemical Society National Meeting, Washington, DC, August 2017.

Liberman-Martin, A. L.; Chu, C. K.; Chang, A. B.; Grubbs, R. H. Self-Assembly of Brush Block Copolymer Photonic Crystals Featuring Low T_g Side Chains. 253rd American Chemical Society National Meeting, San Francisco, CA, April 2017. (poster)

Liberman-Martin, A. L. Side Chain Design in Brush Block Copolymer Photonic Crystals. Resnick Foundation Seminar, California Institute of Technology, Pasadena, CA, March 2017.

Liberman-Martin, A. L.; Bergman, R. G.; Tilley, T. D. Activation of Platinum Complexes by Ligand-Based Reactions with Lewis Acids. Organometallics Gordon Research Conference and Seminar, Newport, RI, July 2015. (poster at GRC, speaker at GRS)

Liberman-Martin, A. L.; Bergman, R. G.; Tilley, T. D. Aldehyde Hydrosilylation Catalyzed by a Neutral Bis(perfluorocatecholato)silicon Compound. 46th Silicon Symposium, Davis, CA, June 2015.

Liberman-Martin, A. L. Activation of Platinum Complexes by Ligand-Based Reactions with Lewis Acids. University of California, Berkeley, Berkeley, CA, February 2015. *Invited seminar for prospective graduate students.

Liberman-Martin, A. L. Activation of Platinum Complexes by Ligand-Based Reactions with Lewis Acids. Inorganic Division Seminar, University of Washington, Seattle, WA, January 2015.

Liberman-Martin, A. L.; Bergman, R. G.; Tilley, T. D. Remote Triggers for the Activation of Unreactive Bonds by Late Metal Complexes. 248th American Chemical Society National Meeting, San Francisco, CA, August 2014.

Liberman-Martin, A. L.; Bergman, R. G.; Tilley, T. D. Platinum Complexes Activated by Ligand-Based Reactions with Lewis Acids. 245th American Chemical Society National Meeting, New Orleans, LA, April 2013.

Supervised Research Students at Chapman University

Daniel Chang (Chemistry '19, Chapman University) 2018 – present

(awarded a Spring 2019 Chapman University Center for Undergraduate Excellence Undergraduate Student Scholarly Research/Creative grant)

Cara Fleener (Biochemistry '21, Chapman University) 2019 – present