

# 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](mailto:libermanmartin@chapman.edu)

Website: [www.allegaliberman-martin.com](http://www.allegaliberman-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*

## Professional Appointments

---

**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

---

\* denotes corresponding authorship

‡ denotes equal contribution

- (15) **Lieberman-Martin, A. L.**;\*‡ Ogba, O. M.\*‡ Midsemester Transition to Remote Instruction in a Flipped College-Level Organic Chemistry Course. *J. Chem. Educ.* **2020**, *97*, 3188–3193. (special issue on “Insights Gained While Teaching Chemistry in the Time of COVID-19”)
- (14) Chu, C. K.; Lin, T.-P.; Shao, H.; **Lieberman-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) **Lieberman-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.; **Lieberman-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.; **Lieberman-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) **Lieberman-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.; **Lieberman-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.; **Lieberman-Martin, A. L.**; Tilley, T. D. Electrophilic Activation of Silicon–Hydrogen Bonds in Catalytic Hydrosilations. *Angew. Chem., Int. Ed.* **2017**, *56*, 2260–2294.
- (7) **Lieberman-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.; **Lieberman-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) **Lieberman-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) **Lieberman-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) **Lieberman-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) **Lieberman-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.; **Lieberman-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.

## Manuscripts in Preparation

---

**Lieberman-Martin, A. L.**; Chang, A. B.; Chu, C. K.; Siddique, R. H.; Lee, B.; Grubbs, R. H. Processing Effects on the Self-Assembly of Brush Block Polymer Photonic Crystals. (will be submitted to *ACS Macro Letters*)

Thammavongsy, Z.; **Lieberman-Martin, A. L.**\* Catalytic Applications of Low Valent Group 14 Compounds. (will be submitted to *Coordination Chemistry Reviews*)

**Lieberman-Martin, A. L.**; van Vleet, M.; Zapeda, E.; Roleder, C.; Stephens, E. N.; Cave, R. J.; Williams, N. S. B. Aryl Orientation Preferences in Csp<sup>2</sup>–Csp<sup>3</sup> Reductive Elimination from Platinum (IV) Complexes. (will be submitted to *Organometallics*)

## Grants and Awards Received

---

- American Chemical Society Petroleum Research Fund Undergraduate New Investigator Program “Carbodiphosphoranes as Organocatalysts for Carbodiimide and Isocyanate Reduction” (\$55,000) 2021–2023
- Chapman Pedagogical Innovation Award and Grant (\$5,000) 2020–2021  
“Development of a Concept Video Library and Class Demonstrations for an Advanced Organic Chemistry Course”
- Chapman Grant Writers Bootcamp Grant (\$5,000) 2019–2021
- Chapman University Faculty Opportunity Fund Grant (\$15,000) 2019–2021
- Hamilton Syringe Grant (\$1,000) 2019
- Resnick Sustainability Institute Postdoctoral Fellowship 2016 – 2018
- Outstanding Poster Award, Division of Polymer Chemistry 2017  
253<sup>rd</sup> American Chemical Society National Meeting, San Francisco, CA

- Benjamin Boussett 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) 2013
- Graduate Division Conference Travel Grant (UC-Berkeley) 2013 and 2015
- Barbara McClintock Award for Best Senior Thesis in the Sciences (Scripps College) 2010
- ACS Division of Inorganic Chemistry Undergraduate Award (Scripps College) 2009
- Undergraduate Summer Research Fellowship (Rutgers University) 2009  
Center for Enabling New Technologies through Catalysis
- Norris Foundation Summer Research Fellowship (Scripps College) 2008

## Grant Applications (pending or not funded)

---

- Organic Syntheses Summer 2020 Research Grant for Faculty at Principally Undergraduate Institutions. "Imine Hydroboration by a Cyclic Carbodiphosphorane Catalyst" (\$8,000) (not funded)
- Chapman COVID-19 Rapid Response Research Program. "STEM Student Learning and Well Being in the Midst of Higher Education's Response to COVID-19" (co-PI) (\$14,630) (not funded)

## 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 Science*
- *Chemical Communications*
- *Journal of Chemical Education*

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

## Teaching Experience

---

### Chapman University

- CHEM 230: Organic Chemistry I 2018, 2019
- CHEM 230L: Organic Chemistry I Laboratory 2018, 2019
- CHEM 331: Organic Chemistry II 2019, 2020
- CHEM 331L: Organic Chemistry II Laboratory 2019

## California Institute of Technology

- Ch101: "Revolutionary Inorganic Molecules" (co-instructor) 2017
- 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
- Research Mentor
  - Jana Schmitt, Visiting Graduate Student 2013 – 2014
  - Myles Walden, High School Student Summer 2012

## Supervised Undergraduate Research Students at Chapman University

---

Daniel Chang (Chemistry '19, Chapman University) (2018–2020)

- NSF Graduate Research Fellowship recipient (2020)
- Ronald M. Huntington Award recipient (campus-wide award for research accomplishments)
- Poster presenter at the SoCal Undergraduate Chemistry Research Symposium, July 2019
- Poster presenter at the Fall 2019 American Chemistry Society National Meeting, San Diego, CA. August 2019
- Awarded a Spring 2019 Student Scholarly Research/Creative grant (\$1,000)

Tamara Elenberger (Biochemistry '21, Chapman University) (2020–present)

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

- Awarded a 2019 Chapman Summer Undergraduate Research Fellowship (\$4,000)
- Awarded a Spring 2020 Student Scholarly Research/Creative grant (\$1,000)

Vanna Kizirian (Chemistry '21, Chapman University) (2020–present)

Ali Mahmoud (transferred from Chapman University to the University of Washington) (Spring 2020)

- Received Honorable Mention for 2020 Chapman Summer Undergraduate Research Fellowship

Roxanne Naumann (Chemistry '21, Chapman University) (2019 – present)

- Awarded a 2019 Chapman Summer Undergraduate Research Fellowship (\$4,000)
- Awarded a Fall 2019 Student Scholarly Research/Creative grant (\$1,000)

Liam Sullivan (Chemistry '21, Chapman University) (2020–present)

Alexa Wilson (Chemistry '22, Chapman University) (2020–present)

## Service and Outreach

---

### Chapman University

- Co-founder and co-director of the Chemistry & Biochemistry Seminar Series 2018 – present
- Member of Search Committee for Assistant Professor of Mathematics 2019 – 2020
- Mentor through the Chemistry Women Mentorship Network 2019 – present
- Organic Chemistry curriculum development 2018 – present
- Faculty Internship advisor for Zubair Lakhia (through KGI) Summer 2020
- Invited speaker to University of California, Berkeley's Science, Leadership, and Management Seminar Series on "Mentoring and Working with Undergraduates" 2019
- Panelist in the CHEM 100 / BCHM 100 Introduction to the Chemistry and Biochemistry Majors and Career Paths course 2019 and 2020
- Participant in a female scientists' lunch with female fellows through Chapman's Summer Undergraduate Research Fellowship in Ecological and Environmental Sciences (SURFEES) program (2019) 2019
- Judge for the California Junior Science and Humanities Symposium (JSHS) 2019
- 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

### University of California, Berkeley

- Student Chair, Chemical Sciences Division Catalysis Group, 2013 – 2015  
Lawrence Berkeley National Laboratory  
- 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  
- 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 7<sup>th</sup> grade students' scientific investigations over a two-month period  
- "Science of Soap" and "Water and Carbon Dioxide" classes for 5<sup>th</sup> 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 (\* denotes Chapman University undergraduate co-authors)

---

**Liberma-Martin, A. L.;** Chang, D. K.\*; Fleener, C. R.\* Hydroboration by a Cyclic Carbodiphosphorane Organocatalyst. Organometallics Gordon Research Conference, Newport, RI, July 2019. (poster)

**Liberma-Martin, A. L.** Metal-Free Catalysis for Organic and Polymer Synthesis. Chapman University Summer Undergraduate Research Fellowship (SURF) Seminar Series. Orange, CA, July 2019.

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

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

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

**Liberma-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. 253<sup>rd</sup> American Chemical Society National Meeting, San Francisco, CA, April 2017. (poster)

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

**Liberma-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)

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

**Liberma-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.

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

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

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