

# Allegra L. Liberman-Martin

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## Education and Research Experience

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**California Institute of Technology, Pasadena, CA** 2016 – present

Resnick Sustainability Institute postdoctoral fellow  
with Prof. Robert H. Grubbs

*Investigation of Brush Polymers as Pressure-Activated Photonic Crystals*

**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  
Research advisor (2008–2010): Prof. Nancy S. B. Williams

*Aryl Orientation Preferences during Reductive Elimination from Platinum Complexes*

Research advisor (Summer 2009): Prof. Alan S. Goldman (Rutgers University)

*Iridium-Catalyzed Transfer Dehydrogenation of Cyclic Alkyl Ether Substrates*

Research advisor (2007–2008): Prof. Kathleen L. Purvis-Roberts

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

## Publications

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- (11) **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.
- (10) 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.

- (9) Lin, T.-P.; Chang, A. B.; Chen, H.-Y.; **Lieberman-Martin, A. L.**; Bates, C. M.; Voegtler, 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.

## Teaching Experience

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### California Institute of Technology

- Ch101: Revolutionary Inorganic Molecules 2017  
Designed and taught an upper-division undergraduate seminar course with a postdoctoral co-instructor
- Guest Lecturer, Organic Chemistry 2016
- Research Mentor 2016 – present  
Jayce Miller, Undergraduate Student

## 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
  - Kathryn Liu, Undergraduate Student 2013 – 2014
  - Jana Schmitt, Visiting Graduate Student 2013 – 2014
  - Myles Walden, High School Student Summer 2012

## Honors and Awards

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- Outstanding Poster Award, Division of Polymer Chemistry, 253<sup>rd</sup> American Chemical Society National Meeting, San Francisco, CA (2017)
- Resnick Sustainability Institute Postdoctoral Fellowship (2016–present)
- 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, 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)

## Service and Outreach

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### California Institute of Technology

- Women Mentoring Women Program 2016 – present
  - Peer mentor for a female graduate student
- Safe Zone Ally 2016 – present
  - 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
  - Member of student-hosted inorganic seminar committee
  - Spoke 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> grade

## 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

## Professional Activities

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### Pedagogy and professional development:

- Completed Caltech course E110: Principles of University Teaching in STEM (2017)
- Attended the ACS Postdoc to PUI Professor (P3) Workshop (2017)
- Attended the Caltech Mentoring Across Difference Conference on Mentoring Undergraduate Researchers (2017)

### Professional affiliations:

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

## Presentations

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**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)

**Lieberman-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.

**Lieberman-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.

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

**Lieberman-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.

**Lieberman-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.

**Lieberman-Martin, A. L.;** Williams, N. S. B. Inversion of Reductive Elimination Reactivity from Two Isomeric Platinum(IV) Complexes. 239<sup>th</sup> American Chemical Society National Meeting, San Francisco, CA, March 2010. (poster)