

## Andy A. Thomas, PhD

Texas A&M University  
College Station, TX 77843-3255  
Phone: 979-845-8160  
[andythomas@tamu.edu](mailto:andythomas@tamu.edu)

### Appointment

---

August 2020 – **Texas A&M University**  
**Assistant Professor, Department of Chemistry**

### Education

---

August 2011 – **University of Illinois at Urbana-Champaign**  
May 2017 **Ph. D. in Chemistry**  
Thesis: *Pre-transmetalation intermediates in the Suzuki-Miyaura reaction revealed:  
The missing link*  
Advisor: Prof. Scott E. Denmark

May 2010 – **University of North Carolina at Charlotte**  
August 2011 **Masters of Science in Chemistry**  
Thesis: *Investigations of Mixed Organocuprates*  
Advisor: Prof. Craig A. Ogle

August 2006 – **University of North Carolina at Charlotte**  
May 2010 **Bachelors of Science in Chemistry**  
Thesis: *Investigations of Lithium Tetramethylcuprate*  
Advisor: Prof. Craig A. Ogle

### Research Experience

---

June 2017 – **Massachusetts Institute of Technology**  
June 2020 NIH Postdoctoral Fellow (Advisor: Prof. Stephen L. Buchwald)

August 2011 – **University of Illinois at Urbana-Champaign**  
May 2017 Graduate Research Assistant (Advisor: Prof. Scott E. Denmark)

May 2008 – **University of North Carolina at Charlotte**  
August 2011 Graduate / Undergraduate Research Assistant (Advisor: Prof. Craig A. Ogle)

### Research Articles at TAMU

---

(Undergraduate co-authors are underlined>)

#### *In Preparation*

31. Chen, C-C.; Sk, M. R; **Thomas, A. A.\***; Enantioselective Synthesis of Allylic Alcohols Through an Asymmetric [2,3] Wittig Rearrangements Approach. *Manuscript In Preparation*
30. Piña, J.; Aguirre, L. S.; Crockett, M. C.; Litwiller, L.; Ly, H.; **Thomas, A. A.\***, Development of a Direct and Highly Selective Deprotonation Capture Sequence for the Synthesis of 4-Substituted Tetrahydroquinolines. *Manuscript in preparation.*

#### *Submitted*

29. Hsu, H.-H.; Kang, S.; Chen, C-C.; Sk, M. R.; **Thomas, A. A.\***; Functionalization of Pyridine at Remote Synthetic Landscapes *via* Undirected Metalation and Capture. *Submitted*

28. Gonzalez, R.; Hsu, H.-H.; **Thomas, A. A.\***, Improved Synthesis of Lithium Dendrites for the Synthesis of (Trimethylsilyl)methylolithium [*Being Checked at Org Syn*]

*Published*

27. Wu, D.; Martin, R. T.; Piña, J.; Kwon, J.; Crockett, M. P.; **Thomas, A. A.**; Gutierrez, O.; Park, H. H.; Hedrick, J. L.; Campos\*, L. M., A Generalized Approach to Activate CO<sub>2</sub> for Carbonation Polymerization and Functional Transformations. *Angew. Chem. Int. Ed.*, DOI: 10.1002/anie.202401281
26. Aguirre, L. S.; Litwiller, L; Lugo, A.; **Thomas, A. A.\***, Phosphine Urea Ligands for Mild Cross-Coupling Reactions. *Helv. Chim. Acta.* **2024**, e202300244.  
(Special issue honoring Prof Scott E. Denmark 70<sup>th</sup> Birthday)
25. Arriaga, D. K.; Kang, S.; **Thomas, A. A.\***, Solvent Effects on the Rate of Olefin Ozonolysis: Development of a Homogeneous Flow Ozonolysis Protocol. *J. Org. Chem.* **2023**, *88*, 13720-13726.  
(Highlighted in *Org. Process Res. Dev.* **2023**, *11*, 1848-1857)
24. Arriaga, D. K.; **Thomas, A. A.\***, Capturing Primary Ozonides for a *syn*-dihydroxylation of olefins. *Nat. Chem.* **2023**, *15*, 1262-1266.  
(Highlighted in *Org. Process Res. Dev.* **2023**, *9*, 1535-1545)
23. Crockett, M. P.; Piña, J.; Gogoi, A. R.; Lalissee, R. F.; Nguyen, A. V.; Gutierrez, O.; **Thomas, A.A.\***, Breaking the tert-Butyllithium Contact Ion Pair: A Gateway to Alternate Selectivity in Lithiation Reactions. *J. Am. Chem. Soc.* **2023**, *145*, 10743-10755.
22. Crockett, M. P.; Aguirre, L. S.; Jimenez, L. B.; Hsu, H.-H.; **Thomas, A. A.\***, Preparation of Highly Reactive Lithium Metal Dendrites for the Synthesis of Organolithium Reagents. *J. Am. Chem. Soc.* **2022**, *144*, 16631-16637.  
(Highlighted in C&EN News, Science Magazine, Spotlights in JACS)
21. Arriaga, D. K.; **Thomas, A. A.\***, Antibiotics the easy way. *Nat Synth.* **2022** (News & Views)

### **Book Chapters and Reviews at TAMU**

---

20. Sk, M. R.; **Thomas, A. A.\*** Uses of Organolithiums in Organic Synthesis. *Synthesis*, **2024**, [In Preparation]
19. Crockett, M. P.; **Thomas, A. A.\*** Uses of Alkali Metals in Organic Chemistry. *Science of Synthesis*, **2024**, *Vol 8*, [Submitted]

### **Patents at TAMU**

---

18. Crockett, M. P.; Aguirre, L. S.; Jimenez, L. B.; Hsu, H.-H.; **Thomas, A. A.\*** Systems and methods for preparation of highly reactive alkali metal dendrites for the synthesis of organolithium reagent. US2023-18224207. Filed July, 20<sup>th</sup> 2023
17. Litwiller, L; **Thomas, A. A.\*** Preparation of Highly Reactive Lithium Metal Dendrites. US Provisional Patent Filing 63/390,753; TAMU-6091

### **Publications Prior to TAMU (Mentored)**

---

16. Zhukhovitskiy, A.V.; Kobylanskiy, I.J.; **Thomas, A.A.**; Evans, A.M.; Delaney, C.P.; Flanders, N.C.; Denmark, S.E.; Dichtel, W.R.; Toste, F.D.\* A Dinuclear Mechanism Implicated in Controlled Carbene Polymerization. *J. Am. Chem. Soc.* **2019**, *141*, 6473-6478.
15. **Thomas, A.A.**; Speck, K.; Kevlishvili, I.; Lu, Z.; Liu, P.\*; Buchwald, S.L.\* Mechanistically Guided Design of Ligands That Significantly Improve the Efficiency of CuH-Catalyzed Hydroamination Reactions. *J. Am. Chem. Soc.* **2018**, *140*, 13976-13984.

14. **Thomas, A.A.**; Zahrt, A.F.; Delaney, C.P.; Denmark, S.E.\* Elucidating the Role of the Boronic Esters in the Suzuki-Miyaura Reaction: Structural, Kinetic, and Computational Investigations. *J. Am. Chem. Soc.* **2018**, *140*, 4401-4416.
13. **Thomas, A. A.**; Denmark, S. E.\* Ernest L. Eliel, a Physical Organic Chemist with the Right Tool for the Job: Rapid Injection Nuclear Magnetic Resonance. In Stereochemistry and Global Connectivity: The Legacy of Ernest Eliel; Cheng, H. N., Ed.; ACS Symposium Series; American Chemical Society: Washington, DC, 2017; Vol. 2, pp 105-134.
12. **Thomas, A.A.**; Wang, H.; Zahrt, A.F.; Denmark, S.E.\* Structural, Kinetic, and Computational Characterization of the Elusive Arylpalladium(II)boronate Complexes in the Suzuki-Miyaura Reaction. *J. Am. Chem. Soc.* **2017**, *139*, 3805-3821.
11. **Thomas, A.A.**; Denmark, S.E.\* Pre-transmetalation intermediates in the Suzuki-Miyaura reaction revealed: The missing link. *Science*, **2016**, *352*, 329-332.
10. Dale, J.E.; Vermeulen, N.A.; **Thomas, A.A.**; Barnes, J.C.; Juríček, M.; Blackburn, A.K.; Strutt, N.L.; Sarjeant, A.A.; Stern, C.L.; Denmark, S.E.; Stoddart, J.F.\* ExCage. *J. Am. Chem. Soc.* **2014**, *136*, 10669-10682.
9. Bertz, S.H.\*; Cope, S.K.; Hardin, R.A.; Murphy, M.D.; Ogle, C.A.\*; Smith, D.T.; **Thomas, A.A.**; Whaley, T.N. Complexes of the Gilman Reagent with Double Bonds across the  $\pi$ - $\sigma$  Continuum. *Organometallics*. **2012**, *31*, 7827-7838.
8. Bertz, S.H.\*; Browder, K.L.; Hardin, R.A.; Murphy M.D., Ogle, C.A.\*; **Thomas, A.A.** Ligand Exchange in Mixed Organocuprate(I)  $\pi$ -Complexes. *Organometallics*. **2012**, *31*, 7809-7811.
7. Bertz, S.H.\*; Hardin, R.A., Murphy, M.D., Ogle, C.A.\*; Richter, J.D., **Thomas, A.A.** Rapid Injection NMR Reveals  $\eta^3$  ' $\pi$ -Allyl'  $\text{Cu}^{\text{III}}$  Intermediates in Addition Reactions of Organocuprate Reagents. *J. Am. Chem. Soc.* **2012**. *134*, 9557-9560.
6. Bertz, S.H.\*; Hardin, H.A.; Murphy, M.D.; Ogle, C.A.\*; Richter, J.D.; **Thomas, A.A.** Minimization of Organocuprate Complexity through Self-Organization: Remarkable Orientation Effect in Mixed Cuprate  $\pi$  Complexes. *Angew. Chem. Int. Ed.* **2012**, *51*, 2681-2685.
5. Bertz, S.H.\*; Moazami, Y.; Murphy, M.D.; Ogle, C.A.\*; Richter, J.D.; **Thomas, A.A.** Complexes of Gilman Reagents with C-S and C-N Double Bonds:  $\sigma$  or  $\pi$  Bonding? *J. Am. Chem. Soc.* **2010**, *132*, 9549-9551.
4. Bertz, S. H.\*; Murphy, M.D.; Ogle, C.A.\*; **Thomas, A.A.** Organocuprate(III) chemistry: synthesis and reactivity of amido, cyano, phosphido and thiolato ate complexes of copper(III). *Chem. Commun.* **2010**, *46*, 1255-1256.
3. Bartholomew, E.R.; Bertz, S.H.\*; Cope, S.K.; Murphy, M.D.; Ogle, C.A.\*; **Thomas, A.A.** Serendipity strikes again—efficient preparation of lithium tetramethylcuprate(III) via rapid injection NMR. *Chem. Commun.* **2010**, *46*, 1253-1254.
2. Monroe, T.B.; **Thomas A.A.**; Jones, D.S.\*; Ogle, C.A.\* Bis(2-naphthylmethyl)diphenylsilane. *Acta Cryst.* **2010**, E66, o132.
1. Burnham, L.E.; Kachla, R.M.; **Thomas A.A.**; Jones, D.S.\*; Ogle, C.A.\* Tetrakis(4-tert-butyl benzyl)silane. *Acta Cryst.* **2010**, E66, o2442.

## Awards, Honors and Selected Service

### *Texas A&M University*

- 2024 Welch Foundation Research Grant (A-2081-20240404)
- 2023 NIH-NIGMS MIRA Award (R35GM151018)
- 2023 ACS-PRF Doctoral New Investigator Grant (66745-DNI1)
- 2023 NSF-CAREER Award (CAREER-228881)

- 2022 Science of Synthesis Early Career Advisory Board Elect  
2021 Welch Foundation Research Grant (A-2081-20210327)  
2021 Ralph E. Powe Junior Faculty Enhancement Award (ORAU)

***Massachusetts Institute of Technology***

- 2018 Kaufman Teaching Program Certificate  
2017 Ruth L. Kirschstein NIH Postdoctoral Fellowship (3 years of funding)

***University of Illinois at Urbana-Champaign***

- 2018 Reaxys PhD Prize Finalist  
2016 Eli Lilly Graduate Fellowship  
2015 Division of Organic Chemistry ACS Travel Award  
2015 R.C. Fuson Travel Award  
2015 Pines Travel Award  
2014 C.S. Marvel Fellowship  
2013 Dr. Harold R. Snyder Fellowship  
2012 Dow Chemical Fellowship

***University of North Carolina at Charlotte***

- 2010 Research Award, Carolina-Piedmont Section of the ACS  
2010 McKernan Research Scholarship Award, Carolina Chemical Club  
2009 Second Place, Undergraduate Research Competition at UNC-Charlotte  
2008 Third Place, Undergraduate Research Competition at UNC-Charlotte

**Invited Presentations (Independent)**

---

28. Texas Synthesis Conference TexSyn, College Station, TX, June 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
27. University of California at Los Angeles, Los Angeles, CA, May 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
26. University of California at Riverside, Riverside, CA, May 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
25. University of North Carolina at Charlotte, Charlotte, NC, April 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
24. Emerging Trends in Catalysis & Synthesis – IC-ETCS, Kharagpur, India, March 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
23. Aspects of Catalysis– IACS, Kolkata, India, March, 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
22. University of Massachusetts at Lowell, Boston, MA, February 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.

21. Catalysis and Chemical Engineering, Boston, MA, February 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
20. Cope Scholar Symposium ACS SWRM, Oklahoma City, OK, November 2023  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
19. Vanderbilt University, Memphis, TN, November 2022  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
18. University of North Carolina at Wilmington, Wilmington, NC, October 2022  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
17. California Northridge, Northridge, CA, March 2022  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
16. Texas State University, San Marcos, TX, February 2022  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.

### **Contributed Presentations (Independent)**

---

15. ACS National Meeting, New Orleans, LA, March 2024  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
14. Organic Reactions and Processes Gordon, Bryan, RI, July 2023  
*Constructive Ozonolysis: Capturing Primary Ozonides*  
Thomas, A.A.
13. ACS National Meeting, Indianapolis, IN, March 2023  
*Constructive Ozonolysis: Capturing Primary Ozonides*  
Thomas, A.A.
12. ACS National Meeting, Indianapolis, IN, March 2023  
*Mechanistic Insights Facilitate the Development of New Bond Forming Processes*  
Thomas, A.A.
11. Stereochemistry Gordon, Newport, RI, July 2022  
*Exploring New Avenues for Organolithium Reagents*  
Thomas, A.A.
10. FloHet, Gainesville, FL, February 2022  
*Exploring New Avenues for Organolithium Reagents*  
Thomas, A.A.
9. ACS Southwest Regional Meeting, Austin, TX, October 2021  
*Exploring New Avenues for Organolithium Reagents*  
Thomas, A.A.

### **Workshops (Independent)**

---

8. NSF Early Career Workshop, Arlington, VA, June 2022

### **Contributed Presentations (Mentored)**

---

7. Merck, Rahway, NJ, October 2016  
*Unraveling the Transmetalation Event in the Suzuki-Miyaura Reaction.*  
Thomas, A.A.; Denmark, S.E.

6. ACS Graduate Research Symposium, Bryn Mawr, PA, July 2016  
*Unraveling the Transmetalation Event in the Suzuki-Miyaura Reaction* Thomas, A.A.; Denmark, S.E.
5. University of North Carolina at Charlotte, Charlotte, NC, February 2016  
*Unraveling the Transmetalation Event in the Suzuki-Miyaura Reaction* Thomas, A.A.; Denmark, S.E.
4. Allerton Conference, University of Illinois at Urbana Champaign, November 2015  
*Unraveling the Transmetalation Event in the Suzuki-Miyaura Reaction* Thomas, A.A.; Denmark, S.E.
3. ACS National Meeting, Anaheim, CA, March 2011  
*Mixed cuprates: It knows where to go!* Thomas, A.A.; Ogle, C.A.
2. ACS National Meeting, Boston, MA, August 2010  
*Lithium dimethylcuprate and thiocarbonyl compounds: Observation, Characterization and Reactions of  $\pi$ -complexes.* Thomas, A.A.; Ogle, C.A.
1. Southeast Regional Meeting ACS, San Juan, Puerto Rico, October 2009.  
*Preparation of Lithium Tetramethylcuprate(III)* Thomas, A.A.; Ogle, C.A.

## Teaching Experience

### *Texas A&M University*

2024 – Fall CHEM227 Organic Chemistry (Undergraduate Level)  
 2024 – Spring CHEM647 Organic Spectroscopy (Graduate Level)  
 2023 – Fall CHEM227 Organic Chemistry (Undergraduate Level)  
 2023 – Spring CHEM647 Organic Spectroscopy (Graduate Level)  
 2022 – Fall CHEM610 Organic Reactions (Graduate Level)  
 2022 – Spring CHEM647 Organic Spectroscopy (Graduate Level)  
 2021 – Fall CHEM610 Organic Reactions (Graduate Level)  
 2020 – Fall CHEM610 Organic Reactions (Graduate Level)

### *Graduate Student Committee Service*

Kaleb Reid	Sam Kempel	Lupita Aguirre
Arpan Paikar	Ashley Braaksma	Deepta Chattapadyay
Connor Allen	Danniel Arriaga	Han-Hsiang Hsu
Siddhesh Borkar	Nico Havenner	Bailey Jameson
Jeanette Piña	Evan Fox	Han-Hsiang Hsu
Shao-Jiun Yang	Achyut Gogoi	Krista Schoonover
Cassandra Youshaw	Jake Nicholson	Jacob Grygus
An Tran	Autumn Andras	Shuai Yin
Houston Smith	Seokmin Kang	Shu Kai Chen
Lauv Patel	Uddalak Sengupta	Cheng-Chun Chen
Suraj Panicker	Wentao Cen	Daniel Sarna
Macayla Guerrero		

## *University of Illinois at Urbana Champaign*

2012 – Fall CHEM 534 Organic Synthesis Course

2012 – Spring CHEM 437 Advanced Undergraduate Organic lab

2011 – Fall CHEM 233 Elementary Undergraduate Organic lab

### **Research Group**

<b>Post-Doctoral Associates</b>	<b>Status</b>	<b>Placement</b>
Binh Dang Ho	April 2024	NA
Md Raja Sk	April 2023	NA
Michael Crockett	Former	Snapdragon, MA
<b>Graduate Students</b>		
Daniel Arriaga	Current (G4)	NA
Jeanette Piña	Current (G4)	NA
Lupita Aguirre	Current (G4)	NA
Seokmin Kang	Current (G3)	NA
Han-Hsiang Hsu	Current (G3)	NA
Cheng-Chun Chen	Current (G2)	NA
Wentao Cen	Current (G1)	NA
Shu Kai Chen	Current (G1)	NA
Daniel Sarna	Current (G1)	NA
Levi Litwiller	Former (MS)	Dept. of Environmental Management Indianapolis
Leonel Jimenez	Former	Graduate Student UCD
<b>Undergraduate Students</b>		
Hai Ly	Current	NA
Alex Sung	Current	NA
Alexis Lugo	Current	NA
Ryan Grove	Current	NA
Austin Colman	Current	NA
Nicole Adams	Current	NA
Raquel Gonzalez	Current	NA
Andrew Nguyen	Former	Amgen, MA
Miguel Garcia	Former	Exxon Mobile, TX
Desirée Young	Former	Framergy, TX
Jonathan Cobb	Former	Unknown

