

TIMOTHY A. SU

TIMOTHYS@UCR.EDU

951.827.1778 // TEAMSU.ORG

UC RIVERSIDE

DEPARTMENT OF CHEMISTRY

501 BIG SPRINGS RD, RIVERSIDE, CA 92521

APPOINTMENTS & EDUCATION

- 2020 - Present** **Participating Faculty Member**
Materials Science & Engineering
University of California, Riverside
- 2019 - Present** **Assistant Professor in Chemistry**
University of California, Riverside
- 2016 -2019** **University of California, Berkeley**
NIH Postdoctoral Research Fellow
Advisor: Christopher J. Chang
- 2016** **Columbia University**
Ph.D. in Chemistry
NSF Graduate Research Fellow
Advisor: Colin Nuckolls
- 2011** **University of California, Berkeley**
B.S. (Honors), Chemistry
Advisor: Jean M.J. Fréchet

HONORS & AWARDS

- 2024** Cottrell Scholar Award
- 2024** NSF CAREER Award
- 2021** ACS PRF Doctoral New Investigator
- 2021** Hellman Faculty Fellowship
- 2021** Emerging Investigator,
Journal of Materials Chemistry C
- 2020** UC Regents Faculty Fellowship
- 2017** NIH F32 Postdoctoral Fellowship
- 2016** Hammett Award
Awarded to the top graduating Ph.D. student in Columbia's Chem. Dept.
- 2013** NSF Graduate Research Fellowship
- 2012** Traube Fellowship, *Columbia Univ.*

PEER-REVIEWED PUBLICATIONS

†equal contribution, *corresponding author

SINCE UCR APPOINTMENT

- Intramolecular London Dispersion Interactions in Single-Molecule Junctions.** (*ChemRxiv link*)
Hight, M. O.; Wong, J. Y.; Pimentel, A. E.; **Su, T. A.*** *J. Am. Chem. Soc.* **2024**, in press.
- Installing Quaternary Germanium Centers in Sila-Diamonoid Cores via Skeletal Isomerization.** (*link*)
Aguirre Cardenas, M. I.; Siu, T. C.; Pimentel, A. E.; Hight, M. O.; Shimono, M. G.; Thai, S.; Carta, V.; **Su, T. A.***
J. Am. Chem. Soc. **2023**, *145*, 20588.
• Featured in *JACS Spotlight* (*link*)
- Site-Selective Functionalization of Sila-Adamantane and Its Ensuing Optical Effects.** (*link*)
Siu, T. C.; Aguirre Cardenas, M. I.; Seo, J.; Boctor, K.; Shimono, M. G.; Tran, I. T.; Carta, V.; **Su, T. A.*** *Angew. Chem. Int. Ed.* **2022**, e202206877.
• Selected as a “Hot Paper” by *Angewandte* Editors • *Angewandte* Author Profile Feature (*link*)
- Oxidation State-Specific Fluorescent Copper Sensors Reveal Oncogene-Driven Redox Changes that Regulate Labile Copper(II) Pools.** (*link*)
Pezacki, A. T.; Matier, C. D.; Gu, X.; Kummelstedt, E.; Bond, S. E.; Torrente, L.; Jordan-Sciutto, K. L.; DeNicola, G. M.; **Su, T. A.***; Brady, D. C.*; Chang, C. J.* *Proc. Natl. Acad. Sci. U.S.A.* **2022**, *119*, e2202736119.
- Pi-Conjugated Organosilanes at the Nexus of Single-Molecule Electronics and Imaging.** (*link*)
Pham, D. T. L.; Nguyen, N. Q.; Hight, M. O.; **Su, T. A.*** *J. Mater. Chem. C* **2021**, *9*, 11605-11618.
• Invited Perspective for 2021 Emerging Investigators Award Issue
- Single-Cluster Electronics.** (*link*)
Siu, T. C.; Wong, J. Y.; Hight, M. O.; **Su, T. A.*** *Phys. Chem. Chem. Phys.* **2021**, *23*, 9643-59.
• Invited Perspective
- Chemical Anthropomorphosis: Acting Out General Chemistry Concepts in Social Media Videos Facilitates Student-Centered Learning and Public Engagement.** (*link*)
Hight, M. O.; Nguyen, N. Q.; **Su, T. A.*** *J. Chem. Educ.* **2021**, *98*, 1283-89.
• Featured in *Massive Science* (*link*) • Videos from this activity viewed over 2.9 million times. (*link*)
- Conductivity in 2D Materials Made Crystal Clear.** (*link*)
Siu, T. C.; **Su, T. A.*** *ACS Cent. Sci.* **2020**, *11*, 9-11.

• Invited First Reactions Article.

9. Permethylation Introduces Destructive Quantum Interference in Saturated Silanes. ([link](#))

Garner, M. H.; Li, H.; Neupane, M.; Zou, Q.; Liu, T.; **Su, T. A.**; Shangguan, Z.; Paley, D. W.; Ng, F.; Xiao, S.; Nuckolls, C.; Venkataraman, L.; Solomon, G. C. *J. Am. Chem. Soc.* **2019**, *14139*, 15471–76.

PRIOR TO UCR APPOINTMENT

10. Caged Luciferins for Bioluminescent Activity-Based Sensing. ([link](#))

Su, T. A.; Bruemmer, K. J.; Chang, C. J. *Curr. Opin. Biotechnol.* **2019**, *60*, 198–204.

11. Effects of Copper Chelation on BRAFV600E Positive Colon Carcinoma Cells. ([link](#))

Baldari, S.; Di Rocco, G.; Heffern, M. C.; **Su, T. A.**; Chang, C. J.; Toietta, G. *Cancers* **2019**, *11*, 659–76.

12. A Modular Ionophore Platform for Liver-Directed Copper Supplementation in Cells and Animals. ([link](#))

Su, T. A.; Shihadih, D.; Cao, W.; Detomasi, T. C.; Heffern, M. C.; Stahl, A.; Chang, C. J. *J. Am. Chem. Soc.* **2018**, *140*, 13764–74.

• Featured in *JACS Spotlight*.

13. Chemiluminescent Probes for Activity-Based Sensing of Formaldehyde Released from Folate Degradation in Living Mice. ([link](#))

Bruemmer, K. J.;[†] Green, O.;[†] **Su, T. A.**;[†] Shabat, D.; Chang, C. J. *Angew. Chem. Int. Ed.* **2018**, *57*, 7508–12.

14. Comprehensive Suppression of Single-Molecule Conductance Using Destructive σ -Interference. ([link](#))

Garner, M. H.; Li, H.; Chen, Y.; **Su, T. A.**; Shangguan, Z.; Paley, D. W.; Liu, T.; Ng, F.; Li, H.; Xiao, S.; Nuckolls, C.; Venkataraman, L.; Solomon, G. C. *Nature* **2018**, *558*, 415–419.

• Featured in *EurekAlert*, *Nanowerk*, *ECN Mag*, *Xinhua*, *Nanotechnology Now*, *Phys.org*, *Columbia Engineering Press*.

15. Large Variations in Single Molecule Conductance of Cyclic and Bicyclic Silanes. ([link](#))

Li, H.; Garner, M. H.; Shangguan, Z.; Chen, Y.; Zheng, Q.; **Su, T. A.**; Neupane, M.; Liu, T.; Steigerwald, M. L.; Ng, F.; Nuckolls, C.; Xiao, S.; Solomon, G. C.; Venkataraman, L. *J. Am. Chem. Soc.* **2018**, *140*, 15080–15088.

16. Silver Makes Better Electrical Contacts to Thiol-Terminated Silanes than Gold. ([link](#))

Li, H.;[†] **Su T. A.**;[†] Camarasa-Gomez, M.; Hernangomez-Perez, D.; Henn, S. E.; Pokorny, V.; Caniglia, C. D.; Inkpen, M. S.; Korytar, R.; Steigerwald, M. L.; Nuckolls, C.; Evers, F.; Venkataraman, L. *Angew. Chem. Int. Ed.* **2017**, *129*, 14145–48.

17. Extreme Conductance Suppression in Molecular Siloxanes. ([link](#))

Li, H.;[†] Garner, M. H.;[†] **Su, T. A.**;[†] Jensen, A.; Inkpen, M. S.; Steigerwald, M. L.; Venkataraman, L.; Solomon, G. C.; Nuckolls, C. *J. Am. Chem. Soc.* **2017**, *139*, 10212–15.

• Featured in *Scientific American*, *Chemistry World*, *Compound Interest*.

18. Silane and Germane Molecular Electronics. ([link](#))

Su, T. A.; Li, H.; Klausen, R. S.; Kim, N. T.; Neupane, M.; Leighton, J. L.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *Acc. Chem. Res.* **2017**, *50*, 1088–95.

19. Mechanism for Si-Si Bond Rupture in Single Molecule Junctions. ([link](#))

Li, H.; Kim, N. T.; **Su, T. A.**; Steigerwald, M. L.; Nuckolls, C.; Darancet, P.; Leighton, J. L.; Venkataraman, L. *J. Am. Chem. Soc.* **2016**, *138*, 16159–64.

20. Tuning Conductance in π - σ - π Single-Molecule Wires. ([link](#))

Su, T. A.;[†] Li, H.;[†] Klausen, R. S.; Widawsky, J. R.; Batra, A.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *J. Am. Chem. Soc.* **2016**, *138*, 7791–95.

21. Chemical Principles of Single-Molecule Electronics. ([link](#))

Su, T. A.; Neupane, M.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *Nature Rev. Mater.* **2016**, *16002*, 1–15.

22. Conformations of Cyclopentasilane Stereoisomers Control Molecular Junction Conductance. ([link](#))

Li, H.; Garner, M. H.; Zhichun, S.; Zheng, Q.; **Su, T. A.**; Neupane, M.; Velian, A.; Xiao, S.; Steigerwald M. L.; Nuckolls, C.; Venkataraman, L. *Chem. Sci.* **2016**, *7*, 5657–62.

23. Single-Molecule Conductance in Atomically Precise Germanium Wires. ([link](#))

Su, T. A.;[†] Li, H.;[†] Zhang, V.; Neupane, M.; Batra, A.; Klausen, R. S.; Kumar, B.; Steigerwald, M. L.

Venkataraman, L.; Nuckolls, C. *J. Am. Chem. Soc.* **2015**, *137*, 12400–05.

24. Stereoelectronic Switching in Single Molecule Junctions. ([link](#))

Su, T. A.; Li, H.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *Nature Chem.* **2015**, *7*, 215–20.

• Featured in *Nature Chemistry Editorial, Phys.org*

25. Electric Field Breakdown in Single Molecule Junctions. ([link](#))

Li, H.; Su, T. A.; Zhang, V.; Steigerwald, M. C.; Nuckolls, C.; Venkataraman, L. *J. Am. Chem. Soc.* **2015**, *137*, 5028–33.

• Featured in *JACS Cover, JACS Spotlight*

26. Evaluating Atomic Components in Fluorene Wires. ([link](#))

Klausen, R. S.; Widawsky, J. R.; Su, T. A.; Li, H.; Chen, Q.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *Chem. Sci.* **2014**, *5*, 1561–64.

27. Silicon Ring Strain Creates High Conductance Pathways in Single-Molecule Circuits. ([link](#))

Su, T. A.; Widawsky, J. R.; Li, H.; Klausen, R. S.; Leighton, J. L.; Steigerwald, M. L.; Venkataraman, L.; Nuckolls, C. *J. Am. Chem. Soc.* **2013**, *135*, 18331–34.

28. Electron Transfer Dynamics of Triphenylamine Dyes Bound to TiO₂ Nanoparticles from Femtosecond Stimulated Raman Spectroscopy. ([link](#))

Hoffman, D. P.; Lee, O. P.; Millstone, J. E.; Chen, M. S.; Su, T. A.; Creelman, M.; Fréchet, J. M. J.; Mathies, R. A. *J. Phys. Chem C.* **2013**, *117*, 6990–97.

PATENTS

1. Functionalized Sila-Adamantane.

Su, T. A.; Siu, T. C.; Aguirre Cardenas, M. I.; Seo, J.

Patent Pending, UC Case # 2022-883-0, filed March 15, 2022.

2. Targeted Ionophore-Based Metal Delivery.

Chang, C. J.; Su, T. A.; Heffern, M. C.

U.S. Patent WO US-2020-0113937, April 16, 2020.

INVITED TALKS

1. UC San Diego, Department of Chemistry, San Diego, CA, 05/2024.
2. 20th International Symposium on Silicon Chemistry, Hiroshima, Japan, 05/2024.
3. International Symposium on Main-Group Element Chemistry, Tsukuba, Japan, 05/2024.
4. Dalhousie University, Department of Chemistry, New Brunswick, Canada, 02/2024.
5. University of Toronto, Department of Chemistry, Toronto, Canada, 02/2024.
6. University of Utah, Department of Chemistry, Salt Lake City, UT, 09/2023.
7. Johns Hopkins University, Department of Chemistry, Baltimore, MD, 09/2023.
8. Padwa Lecture, Columbia University, Department of Chemistry, New York, NY, 09/2023.
9. ACS National Meeting, Sessler Award Symposium in honor of Marie Heffern, San Francisco, CA, 08/2023.
10. AFOSR Organic Materials Chemistry Program Review, Dayton, OH, 06/2023.
11. UC Riverside, Materials Science & Engineering Program Seminar, 03/2023.
12. UC Davis, Department of Chemistry, 02/2023.
13. Japan-US Workshop on Organic/Inorganic Hybrid Materials, Mishima, Japan, 11/2022.
14. Atomically Precise Nanochemistry Gordon Research Conference, Ventura, CA, 10/2022.
15. UKRI Future Leaders Network for Nanoscale Energy Harvesting, Coventry, United Kingdom, 08/2022.
16. Universal Display Corporation, Ewing, NJ (virtual), 06/2022.
17. Inorganic Chemistry Gordon Research Conference, Newport, RI, 06/2022.
18. Hellman Fellows Symposium, Riverside, CA, 03/2022.
19. ACS Annual Regional Meeting, San Geronio Section, Riverside, CA, 11/2021.
20. IUPAC Canadian Chemistry Conference and Exhibition, Montreal, CA (virtual), 08/2021.
21. University of La Verne, Department of Chemistry, 11/2019.

CONTRIBUTED PRESENTATIONS

1. 10th European Silicon Days, Montpellier, France. 07/2023 (talk).

- ACS National Meeting, Main Group Chemistry Symposium, San Diego, CA. 03/2022 (talk).
- 51st North American Silicon Symposium, San Diego, CA. 03/2022 (talk).
- ACS National Meeting, Bioinorganic Chemistry Symposium, San Diego, CA 08/2019 (talk).

CURRENT FUNDING SUPPORT

DURATION	TITLE	AGENCY, GRANT NO.	AMOUNT
07/24 - 06/27 <i>sole PI</i>	Skeletal Editing of Si Nanostructures & Student-Created Social Media Videos to Close the Achievement Gap	Research Corporation for Scientific Advancement <i>Cottrell Scholar Award</i>	\$120,000
06/24 - 05/29 <i>sole PI</i>	CAREER: Saturated and Unsaturated Silicon for Single-Molecule Electronics	National Science Foundation CHE CSDM-B, 2340979	\$770,000
03/23 - 09/24 <i>sole PI</i>	A Multidisciplinary Approach to Silicon Diamondoids for Molecular Electronics	Department of Defense, Air Force Office of Scientific Research <i>FA9550-23-1-0192</i>	\$639,986
09/22 - 08/24 <i>sole PI</i>	Cofacial pi-stacking of polycyclic aromatic hydrocarbons enforced by silane polymerization	American Chemical Society Petroleum Research Fund <i>65042-DN17</i>	\$110,000
08/22 - 08/25 <i>sole PI</i>	Silicon Diamondoid Nanoclusters: Precision Synthesis and Quantum Transport Properties	Department of Defense, Air Force Office of Scientific Research <i>FA9550-22-1-0404</i>	\$450,000

COMPLETED SUPPORT

DURATION	TITLE	AGENCY, GRANT NO.	AMOUNT
10/21 - 09/22 <i>sole PI</i>	Chemical Tools for Visualizing the Glycocalyx in Cancer Cells and Tissue with Nanoscale Resolution	University of California - Cancer Research Coordinating Committee <i>012724-002</i>	\$85,000
07/21 - 06/22 <i>sole PI</i>	Rational Bottom-Up Synthesis of Nanoscale Silicon Electronics	Hellman Foundation	\$30,000
05/21 - 03/22 <i>sole PI</i>	Site-Selective Functionalization and Study of Silicon Nanoclusters	UC Riverside Extramural Funding Opportunity Preparation Award	\$23,725
07/20 - 06/21 <i>sole PI</i>	Atomically Precise Germanium Nanocluster Materials	UC Regents Faculty Fellowship	\$6,000

PROFESSIONAL SERVICE & ACTIVITIES

Symposium Organizer, "Physical Chemistry of Molecular Electronics" Symposium (Physical Chemistry Division) at the Spring 2024 American Chemical Society National Meeting, "Silicon-Containing Oligomers and Polymers" Symposium, Pacificchem 2025.

Journal Guest Editor, Themed issue on "Molecular Scale Electronics" in the *Journal of Materials Chemistry C*, 2023.

Session Chair, Bioinorganic Chemistry Symposium: DNA, RNA & Inorganic Drugs, American Chemical Society National Meeting, UKRI Future Leaders Network for Nanoscale Energy Harvesting.

Member, American Chemical Society.

Reviewer, *Nature*, *Journal of the American Chemical Society*, *ACS Central Science*, *Angewandte Chemie*, *Nature Communications*, *Science Advances*, *Nano Letters*, *Chemical Science*, *Chemical Communications*, *Journal of Materials Chemistry C*, *Journal of Physical Chemistry Letters*, *Organometallics*, *Inorganic Chemistry*, *Organic Letters*, *Journal of Biological Inorganic Chemistry*, *Organic Materials*, *MRS Communications*, *Science China Chemistry*, *ChemistrySelect*, *Chemistry - A European Journal*, *Chemistry - An Asian Journal*, *Journal of Chemical Education*.

National Science Foundation (CHE: SYN, CSDM-B), *Cottrell Scholars Program*, *ACS Petroleum Research Fund*.

UNIVERSITY SERVICE

- 2021-Present** **Chair**, Diversity, Equity, and Inclusion Committee
Department of Chemistry, UCR
- 2020-Present** **Member**, Graduate Admissions Committee, Inorganic & Materials Chemistry Representative
Department of Chemistry, UCR

PUBLIC SERVICE AND OUTREACH

- 2021-Present** **Virtual Outreach with Taft Elementary School**
The Su Lab designs and executes virtual & live laboratory experiments for 5th and 6th grade Taft Elementary students (~60/yr) over Google Hangouts, where students test hypotheses in “Elephant Toothpaste” and “Boo Bubbles” experiments.
- 2020-Present** **#ChemClout: Chemistry-Themed TikTok Videos for Chemical Education & Outreach**
Created a “social media challenge” in NASC 093 and CHEM 001B courses, where UCR undergrads make chemistry- and STEM career-themed TikTok videos to reach broad online audiences. These videos have received over 2.9 million views in total ([link](#)).
- 2020** **Outreach Collaborator with UCR CNAS Ambassadors**
Contributed four chemistry-themed lesson plans for the CNAS Ambassadors to execute in their outreach with Riverside K-6 students. Gave a seminar to CNAS Ambassadors organization about finding research opportunities at UC Riverside.
- 2020-2021** **Poster Judge for RUSD Students**
Evaluated chemistry posters for RUSD students at the UC Riverside HUB poster contest & RUSD Science Fair.
- 2019-Present** **Outreach with Pachappa and Taft Elementary Schools**
Taught 5th and 6th graders at Pachappa Elementary about the scientific method, exploring the statistical breakdown of color frequency in M&M candy packages and helped students prepare posters for the regional Science Fair. Engaged 5th and 6th grade Taft Elementary students in virtual lab demos and hypothesis-driven inquiry in ‘Boo Bubbles’ and ‘Elephant Toothpaste’ experiments.

TEACHING

CHEM 002B: General Chemistry for Chemistry Majors

Winter 2023: 21 students. Winter 2024: 20 students.

NASC 093: Freshman Seminar for Chemistry Majors

Fall 2020: 24 students.

CHEM 001B: General Chemistry

Winter 2020: 276 students. Winter 2021: 250 students. Winter 2022 (two sections): 242 students, 244 students. Fall 2023: 278 students.

CHEM 231A/MSE 245B: Structure and Bonding in Inorganic Chemistry (Graduate Course)

Fall 2019: 13 students. Fall 2020: 18 students. Fall 2021: 8 students. Fall 2022: 14 students. Fall 2023: 22 students.

STUDENT MENTORSHIP

CURRENT LAB MEMBERS

8 graduate students: Timothy C. Siu (CSU CDIP Fellow), Nhien Q. Nguyen, Matthew O. Hight, M. Imex Aguirre Cardenas (NSF GRFP), Lan D. Pham, Jacob Seo, Ashley E. Pimentel, Fernando Alfaro.

8 undergraduate students: McKinley Durham, Lamia Haque, Shalivahana Thai, Aracely Gonzalez, Grace Wang, Amren Saran, Roger Teng, Jancrizto Ruidas.

ALUMNI

Summer Students: Molly Powers (2019), Jessica Hernandez (2023).

Undergraduate Students: Kevin Menjivar (2020), Raasi Bommu (2019-20), Kirillos Boctor (2019-21), Joshua Y. Wong (2020-23), Miku G. Shimono (2021-23), Isabelle T. Tran (2021-23), Jennifer Nguyen (2022-23), Anika Manapul (2021-23).