Dr. Wenqi 'Vince' Liu

University of South Florida
Department of Chemistry
Web: www.vincentchemistry.com
Email: wenqi@usf.edu

Natural and Environmental Science Building
4202 E. Fowler Ave. Tampa, FL
Bluesky: vincentchemistry.bsky.social
X / Twitter: @vincentchem

Educational History

May 2018	PhD (Chemistry), University of Notre Dame, South Bend, IN Thesis Advisor: Bradley D. Smith, Emil T. Hofman Professor of Chemistry Thesis Title: "Molecular Recognition Using Tetralactam Macrocycle and Development of Synthavidin Technology"
Jun 2013	BS (Chemistry), Shandong University, Shandong, China Research Advisor: Prof. Aiyou Hao

Employment History

Aug 2021 – Present	Assistant Professor, Department of Chemistry, University of South Florida, Tampa, FL
Mar. 2022 – Present	Affiliate Faculty, Department of Chemical, Biological and Materials Engineering, Tampa, University of South Florida, Tampa, FL
Aug 2018 – Jul 2021	Postdoctoral Fellow, Department of Chemistry, Northwestern, Evanston, IL Research Advisor: Sir Fraser Stoddart, Board of Trustee Professor of Chemistry, Nobel Laureate in Chemistry 2016

Awards

2024	NSF Early Career Award
2023	Journal of Materials Chemistry Emerging Investigator
2018	Dow Chemical Company Outstanding Graduate Student Award (University of Notre Dame, IN)

Research Area:

With a focus on molecular design and synthesis, my research group encompasses supramolecular chemistry, organic synthesis, physical chemistry, polymer chemistry, and advanced materials. A central theme of our research is focused on molecular recognition, where new physical, chemical, optical, and mechanical properties emerge from noncovalent interactions. Our research aims to tackle critical societal challenges in energy, health, and environmental sciences. The major goals in my group's research are:

1. Understanding Hydrogen Bonding in Water:

One of our primary objectives is to unravel the fundamental principles underlying hydrogen bonding in water. This ubiquitous yet enigmatic interaction plays a pivotal role in various chemical and biological processes, holding the key to understanding life's processes and developing transformative technologies in the biomedical field.

2. Developing Molecular Containers

We strive to develop effective synthetic strategies for the creation of molecular containers. These containers possess the remarkable ability to encapsulate specific molecules, paving the way for innovative applications in sensing, catalysis, and separation.

3. Synthetic Lectins for Diabetes Management:

Our group is dedicated to the development of synthetic lectins, which have the potential to revolutionize diabetes management. We aim to create glucose-responsive peptides (insulins and glucagon) that could provide a groundbreaking approach to diabetes treatment and management.

4. Selective Bimolecular Sensing:

Another key objective is the development of highly selective molecular containers for continuous biomolecular sensing. This investigation has a far-reaching impact on the fields of disease diagnostics and management.

5. Micro Pollutant Sequestration:

Our research addresses the critical issue of micro-pollutant sequestration, aiming to develop efficient methods based on molecular recognition technology for the removal of pollutants from water sources, thereby safeguarding the environment and human health.

6. Sustainable Separation of Critical Minerals:
We are actively engaged in devising sustainable approaches for the separation of critical minerals. This research, based on weak interactions, holds great promise in ensuring a stable supply of essential materials for emerging technologies.

Publications: 48 / Total citation: 1700 / h-index: 23 / i10-index: 37

Publications Under Review
(*Denotes Corresponding Authorship, Undergraduate Authors are Underlined):

2. Zhai, C.; Xu, C.; Cui, Y.; Wojtas, L.; Cai,. J.; **Liu, W.*** A Synthetic Lectin for Glucuronate. 2025, ACS Central Science, **2025**, Under minor revision.

1. Liu, D.,; Victoria, A.; Conces, J.; Mampilly, S..; Mariscal, A.; Cui, Y.; Wojtas, L.; Cai, J.; **Liu, W.*** Shape-Shifting Tetralactam Macrocycles: Protonation-Activated Convergent Hydrogen Bonding. 2025, Under review.

Peer-Reviewed Publications

48. Zhou, P.; Cheng, K.; Qu, K.; Wang, L.; Hu, C.; **Liu, W.;*** Chen, H. An electric molecular Faraday cage. *J. Am. Chem. Soc.* **2025**.147, 19272-19281.

47. Huang, B.; Li, S.; Pan, C.; Li, F.; Wojtas, L.; Qiao, Q.; Tran, T. H.; Calcul, L.; **Liu, W.;** Ke, C.; Cai, J. Proline-Based Tripodal Cages with Guest-Adaptive Features for Capturing Hydrophilic and Amphiphilic Fluoride Substances. *Nat Commun* **2025**, 16, 3226.

46. Mariscal, A.; Sagal, L.; Doan, C.; Zhai, C.; Liu, D.; Wojtas, L.; **Liu, W.*** Sulfate Recognition in Water via Charge-Assisted Hydrogen Bonding. *Chem. Eur. J.* **2025**, doi.org/10.1002/chem.202501400

45. Zhai, C.; Mariscal, A.; **Liu, W.*;** Molecular Recognition in Water by Synthetic Hydrogen-Bonding Receptors. *Trends in Chemistry,* **2025,** 7, 70-84. **(**Invited, Front Cover)

44. Wu, H.; Wang, Y.; Dordevic, L.; Kundu, P.; Bhunia, S.; Chen, A. X.-Y.; Feng, L.; Shen, D.; **Liu, W.;** Zhang, L.; Song, B.; Wu, G.; Liu, B.-T.; Yang, M. Y.; Stern, C. L.; Stupp, S. I.; Goddard III, W.; Hu, W.; Stoddart, J. F. Dynamic Supramolecular Snub Cubes. *Nature* **2025**, 637, 347–353.

43. Zhai, C.; Zulueta, E. C.; Mariscal, A.; Xu, C.; Cui, Y.; Wang, X.; Wu, H.; Doan, C.; Wojtas, L.; Zhang, H.; Cai, J.; Ye, L.; Wang, K.; **Liu, W***. From Small Changes to Big Gains: Pyridinium-Based Tetralactam Macrocycle for Enhanced Sugar Recognition in Water. *Chem. Sci*. **2024**, 15, 19588-19598.

42. Xu, C.; Tran, Q.; Liu, D.; Zhai, C.; Wojtas, L.; **Liu, W***. Charge-Assisted Hydrogen Bonding in A Bicyclic Amide Cage: An Effective Approach to Anion Recognition and Catalysis in Water. *Chem. Sci*. **2024**, 15, 16040-16049. (Back Cover)

41. Feng, Y.; Zhao, X.; Appleton, D. A.; Han, H.; Young, R. M.; **Liu, W.;** Lee, C. K.; Li, W.; Liu, B.-T.; Wu, Y.; Tang, C.; Chen, A. X.-Y.; Stern, C. L.; Kim, D. J.; Wasielewski, M. R.; Qiu, Y.; Stoddart, J. F. Chalcogenoviologen Enhanced Host-Guest Recognition. *CCS Chem* **2024**, 6, 2679-2681.

40. Tang, C.; Han, H.; Zhang, R.; De Moraes, L. S.; Qi, Y.; Wu, G.; Jones, C. G.; Rodriguez, I. H.; Jiao, Y.; **Liu, W.;** Li, X.; Chen, H.; Bancroft, L.; Zhao, X.; Stern, C. L.; Guo, Q.-H.; Krzyaniak, M. D.; Wasielewski, M. R.; Nelson, H. M.; Li, P.; Stoddart, J. F. A Geometrically Flexible Three-Dimensional Nanocarbon. *J. Am. Chem. Soc.* **2024**, 146 (29), 20158–20167.

39. Xue, S.; Xu, W.; Wang, L.; Wang, X.; Duan, Q.; Calcul, L.; Wang, S.; **Liu, W.;** Sun, X.; Lu, L.; Jiang, S.; Cai, J. An HR2-Mimicking Sulfonyl-γ-AApeptide Is a Potent Pan-Coronavirus Fusion Inhibitor with Strong Blood–Brain Barrier Permeability, Long Half-Life, and Promising Oral Bioavailability. *ACS Cent. Sci.* **2023**, *9* (5), 1046–1058.

38. Xu, C.; Tran, Q.; Wojtas, L.; **Liu, W*.** Harnessing Ion–Dipole Interactions: A Simple and Effective Approach to High-Performance Lithium Receptors. *Journal of Materials Chemistry A* **2023**, *11* (23), 12214–12222.

37. Chen, H.; Roy, I.; Myong, M. S.; Seale, J. S. W.; Cai, K.; Jiao, Y.; **Liu, W**.; Song, B.; Zhang, L.; Zhao, X.; Feng, Y.; Liu, F.; Young, R. M.; Wasielewski, M. R.; Stoddart, J. F. Triplet–Triplet Annihilation Upconversion in a Porphyrinic Molecular Container. *Journal of the American Chemical Society* **2023**, *145* (18), 10061–10070.

36. Zhai, C.; Xu, C.; Cui, Y.; Wojtas, L.; **Liu, W***. Dynamic Approach to Synthetic Lectin for Glucose with Boosted Binding Affinity through C−H Hydrogen Bonds. *Chemistry – A European Journal* **2023**, *29* (32), e202300524.

35. Wu, H.; Wang, Y.; Tang, C.; Jones, L. O.; Song, B.; Chen, X. Y.; Zhang, L.; Wu, Y.; Stern, C. L.; Schatz, G. C.; **Liu, W.*;** Stoddart, J. F. High-Efficiency Gold Recovery by Additive-Induced Supramolecular Polymerization of β-Cyclodextrin. *Nature Communications* **2023**, *14* (1), 1284.

34. Garci, A.; David, A. H. G.; Le Bras, L.; Ovalle, M.; Abid, S.; Young, R. M.; **Liu, W.;** Azad, C. S.; Brown, P. J.; Wasielewski, M. R.; Stoddart, J. F. Thermally Controlled Exciplex Fluorescence in a Dynamic Homo[2]Catenane. *Journal of the American Chemical Society* **2022**, *144* (51), 23551–23559.

Publication Prior to Independent Career

33. Garci, A.; Weber, J. A.; Young, R. M.; Kazem-Rostami, M.; Ovalle, M.; Beldjoudi, Y.; Atilgan, A.; Bae, Y. J.; **Liu, W.;** Jones, L. O.; Stern, C. L.; Schatz, G. C.; Farha, O. K.; Wasielewski, M. R.; Fraser Stoddart, J. Mechanically Interlocked Pyrene-Based Photocatalysts. *Nature Catalysis* **2022**, *5* (6), 524–533.

32. Wu, Y.; Guo, Q. H.; Qiu, Y.; Weber, J. A.; Young, R. M.; Bancroft, L.; Jiao, Y.; Chen, H.; Song, B.; **Liu, W.;** Feng, Y.; Zhao, X.; Li, X.; Zhang, L.; Chen, X. Y.; Li, H.; Wasielewski, M. R.; Stoddart, J. F. Syntheses of Three-Dimensional Catenanes under Kinetic Control. *Proceedings of the National Academy of Sciences of the United States of America* **2022**, *119* (12), 1–6.

31. **Liu, W.;** Tan, Y.; Jones, L. O.; Song, B.; Guo, Q. H.; Zhang, L.; Qiu, Y.; Feng, Y.; Chen, X. Y.; Schatz, G. C.; Stoddart, J. F. PCage: Fluorescent Molecular Temples for Binding Sugars in Water. *Journal of the American Chemical Society* **2021**, *143* (38), 15688–15700.

30. **Liu, W.;** Das, P. J.; Colquhoun, H. M.; Stoddart, J. F. Whither Second-Sphere Coordination? *CCS Chemistry* **2022**, *4* (3), 755–784.

29. Wu, H.; Wang, Y.; Song, B.; Wang, H.-J.; Zhou, J.; Sun, Y.; Jones, L. O.; **Liu, W.;** Zhang, L.; Zhang, X.; Cai, K.; Chen, X.-Y.; Stern, C. L.; Wei, J.; Farha, O. K.; Anna, J. M.; Schatz, G. C.; Liu, Y.; Fraser Stoddart, J. A Contorted Nanographene Shelter. *Nat Commun* **2021**, *12* (1), 5191.

28. Wu, H.; Wang, Y.; Jones, L. O.; **Liu, W.;** Zhang, L.; Song, B.; Chen, X. Y.; Stern, C. L.; Schatz, G. C.; Stoddart, J. F. Selective Separation of Hexachloroplatinate (IV) Dianions Based on Exo-Binding with Cucurbit[6]uril. *Angew. Chem. Int. Ed.* **2021**, *60* (32), 17587–17594.

27. **Liu, W.;** Stoddart, J. F. Emergent Behavior in Nanoconfined Molecular Containers. *Chem* **2021**, *7* (4), 919–947.

26. **Liu, W.;** Jones, L. O.; Wu, H.; Stern, C. L.; Sponenburg, R. A.; Schatz, G. C.; Stoddart, J. F. Supramolecular Gold Stripping from Activated Carbon Using α-Cyclodextrin. *Journal of the American Chemical Society* **2021**, *143* (4), 1984–1992.

25. Anamimoghadam, O.; Jones, L. O.; Cooper, J. A.; Beldjoudi, Y.; Nguyen, M. T.; **Liu, W.;** Krzyaniak, M. D.; Pezzato, C.; Stern, C. L.; Patel, H. A.; Wasielewski, M. R.; Schatz, G. C.; Stoddart, J. F. Discrete Open-Shell Tris(Bipyridinium Radical Cationic) Inclusion Complexes in the Solid State. *J. Am. Chem. Soc.* **2021**, *143* (1), 163–175.

24. Cai, K.; Cui, B.; Song, B.; Wang, H.; Qiu, Y.; Jones, L. O.; **Liu, W.;** Shi, Y.; Vemuri, S.; Shen, D.; Jiao, T.; Zhang, L.; Wu, H.; Chen, H.; Jiao, Y.; Wang, Y.; Stern, C. L.; Li, H.; Schatz, G. C.; Li, X.; Stoddart, J. F. Radical Cyclic [3]Daisy Chains. *Chem* **2021**, *7* (1), 174–189.

23. Shaffer, C. C.; **Liu, W.;** Oliver, A. G.; Smith, B. D. Supramolecular Paradigm for Capture and Co-Precipitation of Gold(III) Coordination Complexes. *Chemistry – A European Journal* **2021**, *27* (2), 751–757.

22. Wu, H.; Wang, Y.; Jones, L. O.; **Liu, W.;** Song, B.; Cui, Y.; Cai, K.; Zhang, L.; Shen, D.; Chen, X.-Y.; Jiao, Y.; Stern, C. L.; Li, X.; Schatz, G. C.; Stoddart, J. F. Ring-in-Ring(s) Complexes Exhibiting Tunable Multicolor Photoluminescence. *Journal of the American Chemical Society* **2020**, *142* (39), 16849–16860.

21. Qiu, Y.; Song, B.; Pezzato, C.; Shen, D.; **Liu, W.;** Zhang, L.; Feng, Y.; Guo, Q. H.; Cai, K.; Li, W.; Chen, H.; Nguyen, M. T.; Shi, Y.; Cheng, C.; Dean Astumian, R.; Li, X.; Fraser Stoddart, J. A Precise Polyrotaxane Synthesizer. *Science (New York, N.Y.)* **2020**, *368* (6496), 1247–1253.

20. **Liu, W.;** Stern, C. L.; Stoddart, J. F. Suit[4]Ane. *Journal of the American Chemical Society* **2020**, *142* (23), 10273–10278.

19. **Liu, W.;** Lin, C.; Weber, J. A.; Stern, C. L.; Young, R. M.; Wasielewski, M. R.; Stoddart, J. F. Cyclophane-Sustained Ultrastable Porphyrins. *Journal of the American Chemical Society* **2020**, *142* (19), 8938–8945.

18. **Liu, W.;** Bobbala, S.; Stern, C. L.; Hornick, J. E.; Liu, Y.; Enciso, A. E.; Scott, E. A.; Fraser Stoddart, J. XCage: A Tricyclic Octacationic Receptor for Perylene Diimide with Picomolar Affinity in Water. *Journal of the American Chemical Society* **2020**, *142* (6), 3165–3173.

17. **Liu, W.;** Oliver, A. G.; Smith, B. D. Stabilization and Extraction of Fluoride Anion Using a Tetralactam Receptor. *Journal of Organic Chemistry* **2019**, *84* (7), 4050–4057.

16. McGarraugh, H. H.; **Liu, W.;** Matthews, B. P.; Smith, B. D. Croconaine Rotaxane Dye with 984 nm Absorption: Wavelength-Selective Photothermal Heating. *European Journal of Organic Chemistry* **2019**, *2019* (21), 3489–3494.

15. **Liu, W.;** McGarraugh, H. H.; Smith, B. D. Fluorescent Thienothiophene-Containing Squaraine Dyes and Threaded Supramolecular Complexes with Tunable Wavelengths between 600–800 nm. *Molecules* **2018**, *23* (9), 2229.

14. **Liu, W.;** Oliver, A. G.; Smith, B. D. Macrocyclic Receptor for Precious Gold, Platinum, or Palladium Coordination Complexes. *Journal of the American Chemical Society* **2018**, *140* (22), 6810–6813.

13. **Liu, W.;** Johnson, A.; Smith, B. D. Guest Back-Folding: A Molecular Design Strategy That Produces a Deep-Red Fluorescent Host/Guest Pair with Picomolar Affinity in Water. *Journal of the American Chemical Society* **2018**, *140* (9), 3361–3370.

12. Shaw, S. K.; **Liu, W.;** Gómez Durán, C. F. A.; Schreiber, C. L.; Betancourt Mendiola, M. de L.; Zhai, C.; Roland, F. M.; Padanilam, S. J.; Smith, B. D. Non-Covalently Pre-Assembled High-Performance Near-Infrared Fluorescent Molecular Probes for Cancer Imaging. *Chemistry - A European Journal* **2018**, *24* (52), 13821–13829.

11. **Liu, W.;** Gómez-Durán, C. F. A.; Smith, B. D. Fluorescent Neuraminidase Assay Based on Supramolecular Dye Capture after Enzymatic Cleavage. *Journal of the American Chemical Society* **2017**, *139* (18), 6390–6395.

10. **Liu, W.;** Samanta, S. K.; Smith, B. D.; Isaacs, L. Synthetic Mimics of Biotin/(Strept)Avidin. *Chemical Society Reviews* **2017**, *46* (9), 2391–2403.

9. Shaw, S. K.; **Liu, W.;** Brennan, S. P.; de Lourdes Betancourt-Mendiola, M.; Smith, B. D. Non-Covalent Assembly Method That Simultaneously Endows a Liposome Surface with Targeting Ligands, Protective PEG Chains, and Deep-Red Fluorescence Reporter Groups. *Chemistry - A European Journal* **2017**, *23* (51), 12646–12654.

8. Gómez-Durán, C. F. A.; **Liu, W.;** Betancourt-Mendiola, M. D. L.; Smith, B. D. Structural Control of Kinetics for Macrocycle Threading by Fluorescent Squaraine Dye in Water. *J. Org. Chem.* **2017**, *82* (16), 8334–8341.

7. Hu, D.; Jin, S.; Shi, Y.; Wang, X.; Graff, R. W.; **Liu, W.;** Zhu, M.; Gao, H. Preparation of Hyperstar Polymers with Encapsulated Au25(SR)18 Clusters as Recyclable Catalysts for Nitrophenol Reduction. *Nanoscale* **2017**, *9* (10), 3629–3636.

6. **Liu, W.;** Peck, E. M.; Smith, B. D. High Affinity Macrocycle Threading by a Near-Infrared Croconaine Dye with Flanking Polymer Chains. *Journal of Physical Chemistry B* **2016**, *120* (5), 995–1001.

5. **Liu, W.;** Peck, E. M.; Hendzel, K. D.; Smith, B. D. Sensitive Structural Control of Macrocycle Threading by a Fluorescent Squaraine Dye Flanked by Polymer Chains. *Organic Letters* **2015**, *17* (21), 5268–5271.

4. Peck, E. M.; **Liu, W.;** Spence, G. T.; Shaw, S. K.; Davis, A. P.; Destecroix, H.; Smith, B. D. Rapid Macrocycle Threading by a Fluorescent Dye-Polymer Conjugate in Water with Nanomolar Affinity. *Journal of the American Chemical Society* **2015**, *137* (27), 8668–8671.

3. Li, Z.; **Liu, W**.; Hao, A. Gel-Sol-Gel' Evolution Triggered by Formic Acid. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **2014**, *451*, 25–32.

2. Hou, Y.; Li, S.; Sun, T.; Yang, J.; Xing, P.; **Liu, W.;** Hao, A. Organogels Based on β-Cyclodextrin System with Molecular Recognition Property. *J Incl Phenom Macrocycl Chem* **2014**, *80* (3–4), 217–224.

1. **Liu, W.;** Xing, P.; Xin, F.; Hou, Y.; Sun, T.; Hao, J.; Hao, A. Novel Double Phase Transforming Organogel Based on β-Cyclodextrin in 1,2-Propylene Glycol. *Journal of Physical Chemistry B* **2012**, *116* (43), 13106–13113.

Patents (Both US and International)

7. Liu, W. Pyridinium-Based Cyclophanes and Methods of Use Thereof. International Patent filed: 11001-205WO1
6. Liu, W. High-efficiency gold recovery by additive-induced supramolecular polymerization of β-cyclodextrin. Under IP disclosure.
5. Stoddart, J.F.; Liu, W.; Tan, Y. Pyrene-Based Cyclophanes as Synthetic Lectins and Their Use for Glucose Recognition and Sensing in Aqueous Solutions. Under IP disclosure.
4. Stoddart, J. F.; Liu, W.; Supramolecular Gold Stripping from Activated Carbon Using α-Cyclodextrin. US Patent Application No. 18/258,431
3. Stoddart, J. F.; Liu, W.; Cyclophane-Sustained High-Performance Porphyrins. US Patent 12,084,579.
2. Stoddart, J. F.; Liu, W.; Tricyclic Octacationic Cyclophane and Its Use in Complexation with Perlene Diimide DyesPatent. US Patent Application No. 17/445,053.
1. Xing, P.; Hao, A.; Liu, W.; Non-toxic and Stable Small Molecular Organic Gel and Preparation Method Thereof. China Patent No. CN102,627,790 B

Lectures

(Future) Invited and Contributed Lectures (In a department of chemistry unless otherwise noted)

28. Liu, W. Taming Hydrogen Bonding in Water. Washington University in St. Louis, St. Louis, MO, Apr. 9 2026 (Invited)
27. Liu, W. Anion Recognition in Water by Hydrogen Bonding Receptors. Anion Recognition Chemistry symposium PacifiChem 2025, Honolulu, HI, Dec. 15, 2025 (Invited).
26. Liu, W. Taming Hydrogen Bonding in Water. University of Oregon, Eugene, OR, Nov. 12, 2025. (Invited)
25. Liu, W. Taming Hydrogen Bonding in Water. University of Colorado, Boulder CO, Nov. 7 2025 (Invited)
24. Liu, W. Taming Hydrogen Bonding in Water. Georgetown University, Washington D.C., Nov. 7 2025 (Invited)
23. Liu, W. Taming Hydrogen Bonding in Water. University of Maryland, College Park, MD, Nov. 6, 2025. (Invited)
22. Liu, W. Taming Hydrogen Bonding in Water. University of California, Riverside, CA, Oct. 24, 2025. (Invited)
21. Liu, W. Taming Hydrogen Bonding in Water. University of Notre Dame, South Bend, IN, Oct. 9, 2025. (Invited)
20. Liu, W. Taming Hydrogen Bonding in Water. University of Central Florida, Orlando, FL, Sep. 26, 2025 (Invited)
19. Liu, W. Taming Hydrogen Bonding in Water. Indiana University Bloomington, IN, Sep. 10, 2025 (Invited)
18. Liu, W. Taming Hydrogen Bonding in Water. Purdue University, West Lafayette, IN, Sep. 9, 2025 (Invited)
17. Liu, W. Taming Hydrogen Bonding in Water. Florida State University, Tallahassee, FL, Sep. 4, 2025 (Invited)
16. Liu, W. Taming Hydrogen Bonding in Water. University of Florida, Gainesville, FL, Sep. 1, 2025 (Invited).
15. Liu, W. Taming Hydrogen Bonding in Water. 5th Aqueous Supramolecular Chemistry Workshop, Montana State University, MT, Jul. 21, 2025 (Invited).
14. Liu, W. Taming Hydrogen Bonding in Water. University of Osaka, Osaka, Japan, Jun. 4, 2025 (Invited).
13. Liu, W. Taming Hydrogen Bonding in Water. International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC) 2025, Kyoto, Japan, May, 26, 2025 (Invited).
12. Liu, W. Taming Hydrogen Bonding in Water. Dartmouth College, Hanover, NH, May 13, 2025 (Invited)
11. Liu, W. NSF Career Workshop panelist, University of South Florida, Tampa, Nov. 15, 2024.
10. Liu, W. Taming Hydrogen Bonding in Water. University of Wyoming, Laramie, WY, Oct. 25, 2024
9. Liu, W. Molecular Recognition of Hydrophilic Substates in Water Through Hydrogen Bonding Receptors. International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC) 2024, Hangzhou, China, May, 06, 2024.
8. Liu, W. Dynamic Approaches to Synthetic Receptors for Molecular Recognition of Hydrophilic Substrates in Water. Chinese American Chemistry & Chemical Biology Professor Associations, Tampa, FL, Dec. 20, 2023
7. Liu, W. Dynamic Approaches to Synthetic Receptors for Molecular Recognition of Hydrophilic Substrates in Water. North American Supramolecular Chemistry meeting, New Orleans, LA, USA, Dec. 18, 2023
6. Liu, W. Lessons from Molecular Switches and Machines. iCANX Online forum, Oct. 24, 2023
5. Liu, W. Tailor-Made Molecular Containers for Molecular Recognition at Atomic Resolution. University of West Florida, Department of Chemistry, Pensacola, FL, USA, Aug. 20, 2023
4. Liu, W. Tailor-Made Molecular Containers for Molecular Recognition at Atomic Resolution. Southeastern University, Department of Chemistry, Lakeland, FL, USA, Sep. 22, 2022
3. Liu, W. Tailor-Made Molecular Containers for Molecular Recognition at Atomic Resolution. University of South Florida, Department of Chemical Biological and Materials Engineering, Tampa, FL, USA, Mar. 02, 2022
2. Liu, W. Tailor-Made Molecular Containers for Molecular Recognition at Atomic Resolution. University of South Florida, Department of Chemistry, Tampa, FL, USA, Feb. 16, 2022
1. Liu, W.; Gómez-Durán, C. F. A.; Smith, B. D. Fluorescent Enzyme Assay Based on Pseudorotaxane Formation. Oral Presentation Delivered at 252th ACS National Meeting, Philadelphia, PA, Aug. 2016.

Contributed Posters

1. Liu, W.; Gómez-Durán, C. F. A.; Smith, B. D. Fluorescent Neuraminidase Assay Based on Supramolecular Dye Capture after Enzymatic Cleavage. Poster Presentation Delivered at 14th Annual Conference on Foundations of Nanoscience, Snowbird, Utah, April 2017.

Students Contributed Talks and Posters (Undergraduates are underlined)

8. Phan, T. Charge-assisted hydrogen bonding receptor as an effective approach to anion recognition and catalysis in water, Tampa, FL, USA, April 26, 2025
7. Maji, I. A Hydrogen Bonding Receptor for Dihydrogen Phosphate. Castle Conference, Tampa, FL, USA, April 26, 2025
6. Zhai, C. Pyridinium-based tetralactam macrocycle for enhanced sugar recognition in water. NASC 2024, New Orleans, USA, Dec. 17, 2024.
5. Xu, C. Charge-assisted hydrogen bonding in a bicyclic amide cage: an effective approach to anion recognition and catalysis in water. NASC 2024, New Orleans, USA, Dec. 17, 2024.
4. Mariscal, A. Charge-assisted anion recognition in water by a "saddle lactam" macrocycle. Florida Inorganic and Materials Symposium 2024, Gainesville, FL. USA. Nov. 8, 2024.
3. Sagal, L. Charge-Assisted Anion Recognition in Water. Castle Conference, Tampa, FL, USA, Mar. 2, 2024.
2. Colmegna, T. Pyrrole Based Molecular Cage, Castle Conference, Tampa, FL, USA, Mar. 2, 2024.
1. Xu, C.; Tran, Q. Harnessing ion-dipole interactions: a simple and effective approach to high-performance lithium receptors. Castle Conference, Tampa, FL, USA, Mar. 4, 2023.

Funding Awarded

CAREER: Taming Hydrogen Bonding in Water	
PI:	Wenqi Liu
Agency:	NSF-MSN
Type & Dates:	Federal grant 08/01/2024–07/31/2029
Funding:	$599,879
Aim:	To investigate molecular recognition in water dictated by hydrogen bonding

Discovering Synthetic Molecular Receptors for Sustainable Separation of Lithium	
PI:	Wenqi Liu
Agency:	NSF-CBET 07/01/2025–6/30/2028
Type & Dates:	Federal grant
Funding:	$464,985
Aim:	To develop direction lithium extraction technology

Travel award	
PI:	Wenqi Liu
Agency:	Sponsored Research, USF
Type & Dates:	CAS-ORS Conference Presenter Support program 2025
Funding:	$750
Aim:	To cover the ISMSC 2025 registration fee.

Developing Supramolecular Adsorbent Materials for Direct Ammonium Extraction	
PI:	Wenqi Liu
Agency:	Sponsored Research, USF
Type & Dates:	Internal New Research Grant 05/01/2025–04/30/2026
Funding:	$20,000
Aim:	To discover molecular receptors for ammonium

Macrocyclic Ureas for Selective Capture and Release of Lithium Ions	
PI:	Wenqi Liu
Agency:	Sponsored Research, USF
Type & Dates:	Internal New Research Grant 05/01/2022–04/30/2023
Funding:	$10,000
Aim:	To discover molecular receptors for lithium ions.

Startup at the University of South Florida	
PI:	Wenqi Liu
Agency:	USF
Type & Dates:	Startup funding 08/07/2021–08/07/2026
Funding:	$450,000

Aim:	To establish the research group at USF covering equipment purchase, postdoc salary and consumables

Funding Pending

Synthetic Mimic of Phosphate Binding Protein	
PI:	Wenqi Liu
Agency:	NIH-MIRA-R35
Type	Federal grant
Expected Dates:	12/2025
Requested Funding:	$1,780,740
Aim:	To investigate molecular recognition of phosphorylated biosubstrates
Status:	Scientific Review Group review completed: Council review pending (Impact score: 41, submitted just in time paperwork)
Discovering Synthetic Molecular Receptors for Sustainable Separation of Lithium	
PI:	Wenqi Liu
Agency:	DOE-Separation Science
Type:	Federal grant
Expected Dates:	05/2025
Funding:	$499,999
Aim:	To develop direction lithium extraction technology
Status	External review completed, under internal review (Submitted updated current and pending paperwork)
Discovering Supramolecular Adsorbent Materials for Ammonium Recovery	
PI:	Wenqi Liu
Agency:	Beckman Young Investigator Program
Type:	Private grant
Expected Dates:	06/2026
Funding:	$600,000
Aim:	To develop adsorption materials for ammonium recovery
Status	Submitted Letter of Intent

Teaching

Course Teaching.

Formal Courses **Bold**. All other courses are research-based.

Term	Prefix	Number	Title	Enrollment
25S	CHM	2210	**Organic Chemistry I**	175
	CHM	6935	**Graduate Seminars in Chemistry**	81
	CHM	7820	Directed Research	2
	CHM	7980	Dissertation: Doctoral	2
	CHM	4970	Undergraduate Research	1
24F	CHM	6263/4932	**Advanced Organic Chemistry II: Physical Organic Chemistry**	16
	CHM	6935	**Graduate Seminars in Chemistry**	74
	CHM	7820	Directed Research	2
	CHM	7980	Dissertation: Doctoral	2
24S	CHM	2210	**Organic Chemistry I**	175
	CHM	6935	**Graduate Seminars in Chemistry**	70
	CHM	7820	Directed Research	3
	CHM	7980	Dissertation: Doctoral	1
	CHM	4970	Undergraduate Research	1

23F	CHM	6263/4932	**Advanced Organic Chemistry II: Physical Organic Chemistry**	19
	CHM	7820	Directed Research	4
23S	CHM	2210	**Organic Chemistry I**	177
	CHM	7820	Directed Research	4
22F	CHM	6263/4932	**Advanced Organic Chemistry II: Physical Organic Chemistry**	13
	CHM	7820	Directed Research	2
	CHM	4970	Undergraduate Research	1
22S	CHM	7820	Directed Research	1
21F	CHM	6263/4932	**Advanced Organic Chemistry II: Physical Organic Chemistry**	16

Research Training

Postdoctoral Associates

Name	*Dates*	*Representative Publication*
Canjia Zhai, Ph.D. US	June 2022–Present	Chem. Eur. J. 2025 / Trends. Chem. 2025, 7, 70/ Chem. Sci, 2024, 15, 19588/ Chem. Sci. 2024, 15, 16040 / Chem. Eur. J. 2023, e202300524

Graduate Students

Name	Degree	Date	*Publication Record*
Chengkai Xu	PhD	Mar. 2022–Present	Chem. Sci, 2024, 15, 19588/ Chem. Sci. 2024, 15, 16040 / J. Mater. Chem. A. 2023, 11, 12214
Alexander Mariscal	PhD	Aug. 2022–Present	Chem. Eur. J. 2025 / Chem. Sci, 2024, 15, 19588 / Trends. Chem. 2025, 7, 70
Ipsita Maji	PhD	Aug. 2022–Present	N.A.

Undergraduate Students

Students in **bold** have published peer-reviewed papers

Name	Date	Position After Graduation
Briana Prieto	Aug.2024– Present	N.A.
Sebestian Mendez	Aug. 2024–Present	N.A.
Hannah Armanious	Apr. 2024–Present	N.A.
Andrew Victoria	Jan. 2024–Present	N.A.
Thi Xuan Phan	Dec. 2023–May 2025	N.A.
Tobias Colmegna	Oct. 2023– May 2024	N.A.
Luzelena Sagal	Oct. 2023–May 2024	N.A.
Jay Conces	Nov. 2023–Present	N.A.
Sandra Mampilly	Nov. 2023–Present	N.A.
Haden Fisher	Oct. 2023–Present	N.A.
Ethan Zulueta	Mar. 2023–May 2024	Master student at USF
Quy Tran	Apr. 2022–May 2024	Sarasota Memorial Hospital.
Carson Doan	Jan. 2022–May 2023	West Virginia School of Osteopathic Medicine.
Thao Nguyen	Jan. 2022–Jan. 2023	N.A.
Alexander Mariscal	Jan. 2022–Jul 2022	Graduate student at USF

SERVICE

Service to the Department of Chemistry and USF

NSF REU students host Specific Activities	May 2025–July 2025 • Advisor for REU students
NSF Career Awards Workshop Panelist Specific Activities	Nov. 15 2025 • Participate in panel discussion • provide advice for early career scholars at USF
NMR committee Specific Activities	Aug. 2024–Present • Participate in committee discussion • Identify issues in NMR core facility and propose solutions to address them
Department Seminar Chair Specific Activities	Jan. 2024–May 2025 • Coordinate seminar speaker visiting schedules • Invite name lecture speakers • Send out weekly emails for department seminars
Graduate Student Recruiting Committee Specific Activities	2021– 2024 • Run departmental recruiting of new graduate students. • Run admissions process to select incoming graduate students

Member of Graduate Student Candidacy, Masters & Doctoral Committees

Name	Institutes /Department	Faculty Advisor	Year
Haiqiang Yang	USF / Pharmaceutical Sciences	Chuanhai Cao	2024–Present
Ruixuan Gao	USF / Chemistry	Jianfeng Cai	2022 – 2023
Chenhuan Wang	USF / Chemistry	Xiaodong Shi	2023
Menglin Xue	USF / Chemistry	Jianfeng Cai	2023
Alexandra Saputo	Moffitt / Drug Discovery	Justin Lopchuk	2021 – Present
Lubem Agbendeh	USF / Molecular Medicine	Xingmin Sun	2023 – Present
Michaela Senn	USF/ Chemistry	Randy Larsen	2023 – Prsent
Mina B. Sharabiani	USF /Chemistry	Ioannis Spanopoulos	2023 – Present
Stephanie Frost	USF / Chemistry	Jeffrey Raker	2022 – 2025
Xue Zhao	USF / Chemistry	Jianfeng Cai	2021 – Present
Yuyu Win	USF / Chemistry	Jianfeng Cai	2022 – Present
Jarais Fontaine	USF / Chemistry	Jianfeng Cai	2023– Present

Service to the community

St. Petersburg Science Festival Specific Activities	2025 –Present • Developing engaging science demonstrations based on our research • Engage in interactions with> 1500 audiences during the activities
R club: Specific Activities	2022– Present • Developing engaging science demonstrations based on our research • Visit 4 middle schools each year • Reach 120–150 middle schools students each year • Spark their interest in pursuing STEM degrees
USF Upward Bound Specific Activities	2023 – Present • Organize an annual summer camp • Accommodate 20–30 high school students in teaching labs • Hand-on lab training • Deliver career workshop for STEM fields

Service to the Profession

External Thesis Committee	05/13/2025 –05/15/2025
Specific Activities	External committee member for a PhD student at Dartmouth College
NSF Panel Reviewer	03/ 2025
Specific Activities	Reviewer for NSF grant applications
Tenure package reviewer	09/2024
Specific Activities	External tenure package reviewer for a PI at Huazhong University of Science and Technology
Journal Reviewer	2021– Present
Specific Activities	Reviewer for The Journal of American Chemical Society / ACS Sensors / Inorganic Chemistry / Nature Communication / Communication Chemistry / Angewandte Chemie International Edition / Advanced Science / Beilstein Journal of Organic Chemistry / Small/ Advanced Science /Materials Chemistry Frontiers/ Molecule
TIRIS Grant Reviewer	2023
Specific Activities	• Reviewer for TIRIS program from France • Evaluate postdoctoral fellowship applications
Castle Conference Judge	2022–Present
Specific Activities	• Poster judge • Oral presentation judge