

Yun Liu

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Position

- 2024–Present **Associate Chair of Research and Graduate Study**,
Department of Polymer Science and Engineering
Peking University, Beijing, China
- 2021–Present **Assistant Professor of Polymer Chemistry**,
College of Chemistry and Molecular Engineering
Peking University, Beijing, China

Education & Training

- 2017–2021 **University of Illinois at Urbana-Champaign**, Urbana, IL, United States
Postdoctoral Research Associate with Professor Jeffrey S. Moore
Beckman Institute for Advanced Science and Technology and Department of Chemistry
- 2011–2017 **Indiana University**, Bloomington, IN, United States
Ph.D. in Chemistry; Advisor: Professor Amar H. Flood
- 2007–2011 **Xiamen University**, Xiamen, FJ, China
B.S. in Chemistry; Advisor: Pei-Qiang Huang & Yun-Bao Jiang

Honors and Awards

- 2025 Chinese Polymer Platform (CPP) Young Investigator Award
- 2025 NG Teng Fong / Sino Scholarship for Outstanding Young Scholar, Peking University
- 2024 International Leading Young Scientist of the Society of Polymer Science, Japan
- 2024 Li Ge Zhao Ning Life Science Junior Fellow
- 2023 Peking University Junior Faculty Teaching Award
- 2022 Excellent Young Investigator, NSFC
- 2019 ACS Polymeric Materials Science & Engineering Future Faculty Scholar ([link](#))
- 2018 IUPAC International Award for Young Chemists, Honorable Mention ([link](#))
- 2015 David A. Rothrock Award (Indiana University)
- 2014 Raymond Siedle Fellowship (Indiana University)
- 2014 Felix Haurowitz Award (Indiana University)
- 2010 National Scholarship, the Ministry of Education of China (Xiamen University)

Publications

Peking Affiliation (*corresponding author)

27. Zhu, T.-Y.; Lei, R.-S.; Wang, B.-W.; Du, T.-Y.; Wei, X.; **Liu, Y.*** Bio-sourced 4-aryl-1,2-dithiolanes for recyclable poly(disulfide)s with high performance. *Angew. Chem. Int. Ed.* **2025**, 64, e202503677. [[doi](#)]
26. Zhang, M.-M.; Su, Y.-M.; Du, T.-Y.; Ding, S.-H.; Dai, J.-Y.; Wang, C.*; **Liu, Y.*** Revealing transition state stabilization in organocatalytic ring-opening polymerization using data science. *Angew. Chem. Int. Ed.* **2025**, 64, e202502090. [[doi](#)]
25. Bai, J.; Liu, Y.-X.; Wang, Y.; Du, T.-Y.; **Liu, Y.***; Zhang, Y.-F.*; You, W.* Commercial 5-vinyl-2-norbornene as a reversible deactivation chain-transfer monomer in ring-opening metathesis polymerization to produce branched copolymers. *Macromolecules* **2025**, 58, 2958–2967. [[doi](#)]
24. Guo, J.; Zhang, S.-Q.; Tao, Y.-Q.; Zheng, W.; Cheng, H.; Li, H.; Wang, Z.-B.; Gou, Y.-Q.; Zhu, J.; Li, L.-X.; **Liu, Y.**; Becker, M.*; Tang, W.* Synthesis of cationic cyclic oligo(disulfide)s via cyclo-

- depolymerization: A redox-responsive and potent antibacterial reagent. *J. Am. Chem. Soc.* **2025**, *147*, 6772–6785. [doi]
23. Ding, S.-H.; Wang, W.-K.; Germann, A.; Wei, Y.-T.; Du, T.-Y.; Meisner, J.*; Zhu, R.*; **Liu, Y.*** Bicyclo-[2.2.0]hexene: A multicyclic mechanophore with reactivity diversified by external forces. *J. Am. Chem. Soc.* **2024**, *146*, 6104–6113. [doi]
 • Highlighted by Synfacts
22. Du, T.-Y.; Shen, B.-M.; Dai, J.-Y.; Zhang, M.-M.; Chen, X.-J.; Yu, P.-Y.*; **Liu, Y.*** Controlled and regioselective ring-opening polymerization for poly(disulfide)s by anion-binding catalysis. *J. Am. Chem. Soc.* **2023**, *145*, 27788–27799. [doi]
 • Cover [doi] • Highlighted by PKU News, X-mol, ScienceNet, etc.

Prior to Peking (‡co-first author; *co-corresponding author)

21. Yu, H.; Li, J.; Li, S.; **Liu, Y.**; Jackson, N.; Moore, J. S.; Schroeder, C. M. Efficient intermolecular charge transport in π -stacked pyridinium dimers using cucurbit[8]uril supramolecular complexes. *J. Am. Chem. Soc.* **2022**, *144*, 3162–3173. [doi]
20. **Liu, Y.**; Holm, S.; Meisner, J.; Jia, Y.; Wu, Q.; Woods, T. J.; Martinez, T. J.; Moore, J. S. Flyby reaction trajectories: Chemical dynamics under extrinsic force. *Science* **2021**, *373*, 208–212. [doi]
 • Highlighted by EurekAlert!, U of I News Bureau, Polymer Science Frontiers, Chemistry World, X-mol, etc.
19. **Liu, Y.**; Parks, F. C.; Sheetz, E. G.; Chen, C.-H.; Flood, A. H. Polarity-tolerant chloride binding in foldamer capsules by programmed solvent-exclusion. *J. Am. Chem. Soc.* **2021**, *143*, 3191–3204. [doi]
18. Yu, H.; Li, S.; Schwieter, K. E. **Liu, Y.**; Sun, B.; Moore, J. S.; Schroeder, C. M. Charge transport in sequence-defined conjugated oligomers. *J. Am. Chem. Soc.* **2020**, *142*, 4852–4861. [doi]
17. VanDenburgh, K. L.; **Liu, Y.**; Sadhukhan, T.; Benson, C. R.; Cox, N. M.; Erbas-Cakmak, S.; Qiao, B.; Gao, X.; Pink, M.; Raghavachari, K.; Flood, A. H. Multi-state amine sensing by electron transfers in a BODIPY probe. *Org. Biomol. Chem.* **2020**, *18*, 431–440. [doi]
16. **Liu, Y.*‡**; Jia, Y.‡; Wu, Q.; Moore, J. S. Architecture-controlled ring-opening polymerization for dynamic covalent poly(disulfide)s. *J. Am. Chem. Soc.* **2019**, *141*, 17075–17080. [doi]
15. Li, S.; Yu, H.; Schwieter, K. E.; Chen, K.; Li, B.; **Liu, Y.**; Moore, J. S.; Schroeder, C. M. Charge transport and quantum interference effects in oxazole-terminated conjugated oligomers. *J. Am. Chem. Soc.* **2019**, *141*, 16079–16084. [doi]
14. **Liu, Y.**; Zhao, W.; Chen, C.-H.; Flood, A. H. Chloride capture using a C–H hydrogen bonding cage. *Science* **2019**, *365*, 159–161. [doi]
 • Highlighted by C&EN (Nominated for Molecule of the Year 2019), EurekAlert!, IU Newsroom, U of I News Bureau, CBC, X-mol, Phys.Org, etc.
13. Li, B.; Yu, H.; Montoto, E. C.; **Liu, Y.**; Li, S.; Schwieter, K. E.; Rodríguez-López, J.; Moore, J. S.; Schroeder, C. M. Intrachain charge transport through conjugated donor–acceptor oligomers. *ACS Appl. Electron. Mater.* **2019**, *1*, 7–12. [doi]
12. Parks, F. C.; **Liu, Y.**; Debnath, S.; Stutsman, S. R.; Raghavachari, K.; Flood, A. H. Allosteric control of photofoldamers for selecting between anion regulation and double-to-single helix switching. *J. Am. Chem. Soc.* **2018**, *140*, 17711–17723. [doi]
11. **Liu, Y.***; Parks, F. C.; Zhao, W.; Flood, A. H. Sequence-controlled stimuli-responsive single-double helix conversion between 1:1 and 2:2 chloride-foldamer complexes. *J. Am. Chem. Soc.* **2018**, *140*, 15477–15486. [doi]
10. Sengupta, A.; **Liu, Y.**; Flood, A. H.; Raghavachari, K. Anion-binding macrocycles operate beyond the electrostatic regime: Interaction distances matter. *Chem. Eur. J.* **2018**, *24*, 14409–14417. [doi]
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9. Benson, C. R.; Maffeo, C.; Fatila, E. M.; **Liu, Y.**; Sheetz, E. G.; Aksimentiev, A.; Singharoy, A.; Flood, A. H. Inchworm movements of two rings switching onto a thread by biased Brownian diffusion represent a three-body problem. *Proc. Natl. Acad. Sci. USA* **2018**, *115*, 9391–9396. [doi]
8. **Liu, Y.**; Sengupta, A.; Raghavachari, K.; Flood, A. H. Anion binding in solution: Beyond the electrostatics regime. *Chem* **2017**, *3*, 411–427. [doi]
 • Cover [doi] • Highlighted by EurekaAlert!, IU Newsroom, phys.org, etc.
7. Qiao, B.; **Liu, Y.**; Lee, S.; Pink, M.; Flood, A. H. A high-yield synthesis and acid-base response of phosphate-templated [3]rotaxanes. *Chem. Commun.* **2016**, *52*, 13675–13678. [doi]
6. **Liu, Y.**[‡]; Singharoy, A.[‡]; Mayne, C. G.[‡]; Sengupta, A.; Raghavachari, K.; Schulten, K.; Flood, A. H. Flexibility coexists with shape-persistence in cyanostar macrocycles. *J. Am. Chem. Soc.* **2016**, *138*, 4843–4851. [doi]
5. Lee, S.; Hirsch, B.; **Liu, Y.**; Dobscha, J. E.; Burke, D. W.; Tait, S. L.; Flood, A. H. Multifunctional tricarbazolo triazolophane macrocycles: One pot preparation, anion binding, and hierarchical self-organization of multilayers. *Chem. Eur. J.* **2016**, *22*, 560–569. [doi]
 • Back cover [doi] • Hot Paper
4. Qiao, B.; Sengupta, A.; **Liu, Y.**; McDonald, K. P.; Pink, M.; Raghavachari, K.; Flood, A. H. Electrostatic and allosteric cooperativity in ion-pair binding: A quantitative and coupled experiment-theory study with aryl-triazole-ether macrocycles. *J. Am. Chem. Soc.* **2015**, *137*, 9746–9757. [doi]
3. Singharoy, A.[‡]; Venkatakrishnan, B.[‡]; **Liu, Y.**[‡]; Mayne, C. G.; Lee, S.; Chen, C.-H.; Zlotnick, A.; Schulten, K.; Flood, A. H. Macromolecular crystallography for synthetic abiological molecules: Combining xMDF and PHENIX for structure determination of cyanostar macrocycles. *J. Am. Chem. Soc.* **2015**, *137*, 8810–8818. [doi]
2. Ramabhadran, R. O.[‡]; **Liu, Y.**[‡]; Hua, Y.; Ciardi, M.; Flood, A. H.; Raghavachari, K. An overlooked yet ubiquitous fluoride congenitor: Binding bifluoride in triazolophanes using computer-aided design. *J. Am. Chem. Soc.* **2014**, *136*, 5078–5089. [doi]
1. Hua, Y.; **Liu, Y.**; Chen, C.-H.; Flood, A. H. Hydrophobic collapse of foldamer capsules drives picomolar-level chloride binding in aqueous-acetonitrile solutions. *J. Am. Chem. Soc.* **2013**, *135*, 14401–14412. [doi]

Book Chapters

2. Dobscha, J.; **Liu, Y.**; Flood, A. H. Shape-persistent Anion Receptors. In *Supramolecular Receptors (organic, inorganic and molecular)*; Atwood, J. L., Rissanen, K., Eds.; Comprehensive Supramolecular Chemistry, 2nd ed., Vol. 3; Elsevier: Amsterdam, 2017. [isbn]
1. **Liu, Y.**; Flood, A. H. Synergistic Effects in Double Helical Foldamers. In *Synergy in Supramolecular Chemistry*; Nabeshima, T., Ed.; CRC Press: Boca Raton, 2014. [isbn]

Patents

2. **Liu, Y.**; Zhu, T.-Y.; Lei, R.-S.; Wang, B.-W. 一种含芳基二硫环戊烷单体和聚二硫化物及其制备方法; Aryl-substituted dithiolanes and their poly(disulfide)s. China Patent Appl. No. 2025104303571
1. Flood, A. H.; **Liu, Y.**; Zhao, W. Aryl triazole cages. US Patent 11,939,336, Mar 26, 2024

Presentations

Invited Seminars

11. Lectures on Frontier of Polymer Sciences (高分子前沿讲座), Department of Chemical Engineering, **Tsinghua University**, Beijing, China, Apr 22, 2022.
10. Duke Chinese Students and Scholars Association (DCSSA), **Duke University**, Durham, NC, United States, Nov 5, 2021.

9. School of Physical Science and Technology, **ShanghaiTech University**, Shanghai, China, Jul 7, 2021.
8. Senior Course CHM490, Department of Chemistry, **Oglethorpe University**, Brookhaven, GA, United States, May 7, 2021.
7. Department of Polymer Science and Engineering, **Peking University**, Beijing, China, Sep 10, 2020.
6. School of Science, **Westlake University**, Hangzhou, ZJ, China, Jun 11, 2020.
5. Department of Chemistry, **University of Chicago**, Chicago, IL, United States, Feb 11, 2020.
4. Department of Chemistry, **McGill University**, Montreal, QC, Canada, Feb 6, 2020.
3. Department of Chemistry and Chemical Biology, **Cornell University**, Ithaca, NY, United States, Jan 17, 2020.
2. Department of Chemistry, **University of Houston**, Houston, TX, United States, Jan 9, 2020.
1. Department of Chemistry, **University of California at Berkeley**, Berkeley, CA, United States, Dec 11, 2019.

Invited Conference Presentations

15. **National Meeting of CCS Polymer Division** (中国化学会高分子年会), Guangzhou, GD, China, Nov 23, 2025.
14. **The 9th International Symposium on Polymer Chemistry**, Changchun, JL, China, October 19, 2025.
13. **The 2025 Conference on Innovations in Polymer Science** (高分子科学创新发展研讨会), Hefei, AH, China, Sep 20, 2025.
12. **The 1st Polymer Science Young Investigator Symposium** (高分子青年学者论坛), Lanzhou, GS, China, Jun 23, 2025.
11. **The 12th Singapore International Chemistry Conference**, Singapore, Dec 10, 2024
10. **The 73rd Annual Meeting of the Society of Polymer Science, Japan (SPSJ)**, Sendai, Japan, Jun 5, 2024
9. **Beijing-Tianjin Polymer Symposium** (京津高分子学术沙龙), Tianjin, China, May 25, 2024.
8. **The NSFC Synthetic Chemistry Young Investigator Symposium** (合成化学青年学者论坛), Guangzhou, GD, China, Nov 7, 2023.
7. **National Meeting of CCS Polymer Division** (中国化学会高分子年会), Wuhan, HB, China, Oct 15, 2023. (*Polymer Young Scholar Symposium*)
6. **ACS National Meeting**, San Francisco, CA, United States, Aug 15, 2023. (*Polymer Mechanochemistry Symposium*)
5. **CUHK-PKU Science Forum** (港中深双边论坛), Chinese University of Hong Kong, Shenzhen, GD, China, May 11, 2023.
4. **2nd Postdoctoral Annual Academic Conference on Molecular Sciences** (第2届分子科学博士后学术年会), Beijing, China, Sep 25, 2022.
3. **ACS National Meeting**, Apr 6, 2021. (*ACS Award in Industrial Chemistry in Honor of Dr. David Hays*) (Virtual).
2. **MechanoChemBio Conference**, Feb 15, 2021 (Virtual).
1. **ACS National Meeting**, San Diego, CA, United States, Aug 26, 2019. (*Future Faculty Symposium*)

Contributed Conference Presentations

9. **International Symposium on Macrocyclic & Supramolecular Chemistry (ISMCS)**, Hangzhou, ZJ, China, May 7, 2024.
8. **CCS National Meeting**, Qingdao, SD, China, Jun 20, 2023.
7. **ACS National Meeting**, San Diego, CA, United States, Aug 29, 2019.

6. **ACS National Meeting**, Philadelphia, PA, United States, Aug 23, 2016.
5. **HC Brown Lectures**, West Lafayette, IN, United States, Apr 15, 2016.
4. **ACS National Meeting**, San Diego, CA, United States, Mar 15, 2016.
3. **Midwest Organic Solid-State Chemistry Symposium**, West Lafayette, IN, United States, Jun 19, 2015.
2. **ACS National Meeting**, Indianapolis, IN, United States, Sep 9, 2013.
1. **International Symposium on Macrocyclic & Supramolecular Chemistry (ISMSC)**, Arlington, VA, United States, Jul 11, 2013.

Teaching and Mentoring

Mentees (30)

Graduate	<u>Peking U</u> : Zhiyang Liu (25'), Xu Zhang (25'), Zheng Li (24'), Bowen Wang (24'), Guangke Wang (23'), Yechen Liu (23'), Xingjian Chen (22'), Yiting Wei (22'), Weixiu Zhong (21'), Tianyu Zhu (21'), Shihao Ding (21'), Tianyi Du (21')
Undergraduate	<u>Peking U</u> : Bofan Xiao (25'), Zhi Zhang (25'), Yichen Jiang (25'), Jizheng Yang (25'), Baitong Zeng (25'), Wenyu Niu (24'), Jionglin Li (24'), Zhiyang Liu (24'), Xiaofei Wang (24'), Yuan Gao (24'), Yunfan Zheng (24'), Jiaheng Liu (24'), Bowen Wang (23'), Yechen Liu (23'), Xu Zhang (23'), Ruishi Lei (22'), Jieyu Dai (22') <u>UIUC</u> : Yuan Jia (18') <u>IU</u> : David Burke (14'), Xiao Xu (14'), Patrick Gamache (14')
Research Associate	<u>Peking U</u> : Miaomiao Zhang (22')

Teaching

Undergraduate	Academic Ethics & Scientific Writing (25'–); Organic Chemistry B (23'–); Chemistry Today (23'–); Principles of Chemistry and Biochemistry (13'); Elementary Chemistry Laboratory & Lecture (12'); Organic Chemistry Laboratory (11')
Graduate	Literature Seminar: Polymer Science (22'–); Seminar: Material Chemistry (13')

Professional Activities

2024/11–	Member , Committee of Graduate Recruitment, Committee of Postdoctoral Affairs, Committee of Doctoral Degree, Committee of International Affairs, College of Chemistry and Molecular Engineering, Peking University
2024/09–	Junior Editorial Board , <i>Chinese Journal of Polymer Science</i> , <i>Acta Polymerica Sinica</i> , & <i>Polymer Bulletin</i>
2024/07–	Early Career Advisory Board , <i>JACS Au</i>
2024/04	Guest Editor , <i>Chemistry – A European Journal</i> , Special Issue "Chemistry solutions to sustainable polymers"
2024/01/16	Secretary , 4 th Soft Matters Frontiers Forum (软物质前沿论坛), College of Chemistry and Molecular Engineering, Peking University
2023/11/18	Organizer , "Beijing-Fudan-Zhejiang-Suzhou" Joint Symposium on Polymer Science (北大-复旦-浙大-苏大四校高分子交流会), College of Chemistry and Molecular Engineering, Peking University
2021	Member , Chinese Chemical Society
2018–2019	Lab Manager , Moore Group at University of Illinois at Urbana-Champaign

Reviewer: *Nature, Nature Chemistry, Chem, Journal of the American Chemical Society, Nature Communication, Advanced Functional Materials, Chemical Science, Chinese Journal of Chemistry, ACS Macro Letters, Macromolecules, Biomacromolecules, Polymer Chemistry, Journal of Organic Chemistry, Bioorganic Chemistry, Crystal Growth & Design, Physical Chemistry Chemical Physics, Supramolecular Chemistry*