

刘芳 / 教授

院系：化学系

从事专业：计算化学

学历：研究生

职称：教授

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研究方向：有机反应机理，催化剂设计

性别：女

学位：博士

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个人简介

刘芳，教授，博士生导师。2014年取得博士学位，师从计算有机化学界知名学者、美国科学院院士 K. N. Houk 教授；先后在美国加州大学洛杉矶分校和南京大学进行博士后研究，2018年作为高层次引进人才加入南京农业大学理学院。主要研究有机反应机理、活性和选择性以及催化剂设计。在 *Nature*, *Acc. Chem. Res.*, *J. Am. Chem. Soc.*, *Angew. Chem. Int. Ed.* 等国际期刊上发表 SCI 论文 20 余篇，其中第一作者文章 7 篇。

工作经历

2018/09-今：南京农业大学，理学院，教授，博士生导师

2016/10-2018/08：南京大学，化学化工学院，博士后

2016/03-2016/09：美国加州大学洛杉矶分校（UCLA），化学与生物化学学院，博士后

教育经历

2009/09-2014/06：美国加州大学洛杉矶分校（UCLA），化学与生物化学学院，博士

2005/09-2009/06：南开大学，化学学院，学士

教学信息

有机化学，物理化学，计算化学课程

科研项目

(2) 南京农业大学引进人才科研启动经费，2018/09-2023/09，在研，主持

(1) 中国博士后科学基金面上项目，2017/08-2018/08，结题，主持

发表文章

21. Yi-Shuang Wang, Bo Zhang, Jiapeng Zhu, Cheng-Long Yang, Yu Guo, Cheng-Li Liu, **Fang Liu**, Huiqin Huang, Suwen Zhao, Yong Liang, Rui-Hua Jiao, Ren-Xiang Tan, and Hui-Ming Ge: "Molecular Basis for the Final Oxidative Rearrangement Steps in Chartreusin Biosynthesis," *J. Am. Chem. Soc.* **2018**, *140*, 10909-10914.

20. Joyann Barber, Michael Yamano, Melissa Ramirez, Evan Darzi, Rachel Knapp, **Fang Liu**, K. N. Houk, and Neil Garg: "Diels–Alder Cycloadditions of Strained Azacyclic Allenes," *Nat. Chem.* **2018**, *10*, 953-960.
19. Huimin Tao‡, **Fang Liu**‡, Ruxin Zeng, Zhuzhou Shao, Lufeng Zou, Yang Cao, Jennifer M. Murphy, K. N. Houk, and Yong Liang: "Origins of Halogen Effects in Bioorthogonal Sydnone Cycloadditions," *Chem. Commun.* **2018**, *54*, 5082-5085.
18. K. N. Houk and **Fang Liu**: "John D. Roberts, his beginnings at UCLA, his transformation of physical organic chemistry, and his impact on science," *J. Phys. Org. Chem.* **2018**, DOI: 10.1002/poc.3810.
17. Masao Ohashi, **Fang Liu**, Yang Hai, Mengbin Chen, Man-cheng Tang, Zhongyue Yang, Michio Sato, Kenji Watanabe, K. N. Houk, and Yi Tang: "SAM-Dependent Enzyme-Catalyzed Pericyclic Reactions in Natural Product Biosynthesis," *Nature*, **2017**, *549*, 502-506.
16. **Fang Liu**, Yong Liang, and K. N. Houk: "Bioorthogonal Cycloadditions: Computational Analysis with the Distortion/Interaction Model, and Prediction of Reactivities," *Acc. Chem. Res.*, **2017**, *50*, 2297-2308.
15. Ilke Ugur, Sesil Agopcan Cinar, Burcu Dedeoglu, Viktorya Aviyente, M. Frederick Hawthorne, Peng Liu, **Fang Liu**, K. N. Houk, and Gonzalo Jimenez-Oses: "1,3-Dipolar Cycloaddition Reactions of Low-Valent Rhodium and Iridium Complexes with Arylnitrile N-Oxides," *J. Org. Chem.*, **2017**, *82*, 5096-5101.
14. K. N. Houk and **Fang Liu**: "Holy Grails for Computational Organic Chemistry and Biochemistry," *Acc. Chem. Res.*, **2017**, *50*, 539-543.
13. Abing Duan, Peiyuan Yu, **Fang Liu**, Huang Qiu, Feng Long Gu, Michael P. Doyle, and K. N. Houk: "Diazo Esters as Dienophiles in Intramolecular (4 + 2) Cycloadditions: Computational Explorations of Mechanism," *J. Am. Chem. Soc.*, **2017**, *139*, 2766-2770.
12. Xia Yu, **Fang Liu**, Yi Zou, Man-Cheng Tang, Leibniz Hang, K. N. Houk, and Yi Tang: "Biosynthesis of Strained Piperazine Alkaloids: Uncovering the Concise Pathway of Herquiline A," *J. Am. Chem. Soc.*, **2016**, *138*, 13529-13532.
11. Yun-Fang Yang, Yong Liang, **Fang Liu**, and K. N. Houk: "Diels-Alder Reactivities of Benzene, Pyridine, and Di-, Tri-, and Tetrazines: The Roles of Geometrical Distortions and Orbital Interactions," *J. Am. Chem. Soc.*, **2016**, *138*, 1660-1667.
10. David N. Kamber, Yong Liang, Robert J. Blizzard, **Fang Liu**, Ryan A. Mehl, K. N. Houk, and Jennifer A. Prescher: "1,2,4-Triazines Are Versatile Bioorthogonal Reagents," *J. Am. Chem. Soc.*, **2015**, *137*, 8388-8391.
9. Lisa Tork, Gonzalo Jimenez-Oses, Charles Doubleday, **Fang Liu**, and K. N. Houk: "Molecular Dynamics of the Diels-Alder Reactions of Tetrazines with Alkenes and N₂ Extrusions from Adducts," *J. Am. Chem. Soc.*, **2015**, *137*, 4749-4758.
8. **Fang Liu**, Yong Liang, and K. N. Houk: "Theoretical Elucidation of the Origins of Substituent and Strain Effects on the Rates of Diels-Alder Reactions of 1,2,4,5-Tetrazines," *J. Am. Chem. Soc.*, **2014**, *136*, 11483-11493.
7. **Fang Liu**, Roger C. Helgeson, and K. N. Houk: "Building on Cram's Legacy: Stimulated Gating in Hemicarcerands," *Acc. Chem. Res.*, **2014**, *47*, 2168-2176.
6. Denisse de Loera, **Fang Liu**, K. N. Houk, and Miguel A. Garcia-Garibay: "Aziridine Nitrogen Inversion by Dynamic NMR: Activation Parameters in a Fused Bicyclic Structure," *J. Org. Chem.*, **2013**, *78*, 11623-11636.
5. **Fang Liu**, Hao Wang, and Kendall N. Houk: "Gating in Host-Guest Chemistry," *Curr. Org. Chem.*, **2013**, *17*, 1470-1480.

4. **Fang Liu**, Robert S. Paton, Seonah Kim, Yong Liang, and K. N. Houk: "Diels-Alder Reactivities of Strained and Unstrained Cycloalkenes with Normal and Inverse-Electron-Demand- Dienes: Activation Barriers and Distortion/Interaction Analysis," *J. Am. Chem. Soc.*, **2013**, *135*, 15642-15649.
3. Hao Wang, **Fang Liu**, Roger C. Helgeson, Kendall N. Houk: "Reversible Photochemically Gated Transformation of a Hermicarcerand to a Carcerand," *Angew. Chem. Int. Ed.*, **2012**, *52*, 655-659.
2. Yong Liang, Joel L. Mackey, Steven A. Lopez, **Fang Liu**, and K. N. Houk: "Control and Design of Mutual Orthogonality in Bioorthogonal Cycloadditions," *J. Am. Chem. Soc.*, **2012**, *134*, 17904-17907.
1. **Fang Liu**, Hao Wang, and K. N. Houk: "Gated Container Molecules," *Sci. China. Chem.*, **2011**, *54*, 2038-2044.

书籍章节

K. N. Houk, **Fang Liu**, Yun-Fang Yang, Xin Hong: *Applied Theoretical Organic Chemistry, Chapter 13: The Distortion/Interaction Model for Analysis of Activation Energies of Organic Reactions*, pp 371-402. Editor: Dean J. Tantillo. World Scientific, 2018.