

化工学院研究生导师简介

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最高学历	研究生	最高学位	博士	学位类别	工学	
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所在学科专业	学科类别代码		学科类别名称		化学工程与技术	
	学科领域代码		学科领域名称		化学工艺	
	研究方向代码		研究方向名称		分离工程	
个人简历	博士，教授，博士生导师。入选北京高校青年英才计划（2013），国家自然科学基金委优青项目（2017）；入选教育部第二批高校“双带头人”教师党支部书记工作室（2020）。在 AIChE J.、Chem. Eng. J.、Angew. Chem. Int. Ed、J. Am. Chem. Soc.、Adv. Funct. Mater.等化学化工主要期刊发表学术论文 170 余篇，申请发明专利 30 件（其中 15 件获得授权），合作/参与出版专著 4 部。					
研究内容简介	基于分子化学工程的理念，利用基于大数据计算的材料分子设计、可控合成与工艺优化的研究思路，采用多尺度理论计算结合机器学习等人工智能技术，结合过程强化手段，对若干重要的难分离体系开展“大数据库构建—数据深度挖掘—关键材料—集成应用”贯通式研发，进而获得具有最好分离性能的材料，以及高效、模块化吸附分离工艺与装置。					
在研科研项目	盐湖稀散元素高效吸附提取，青海省科技厅面上项目， 2024-ZJ-940， 2024. 01-2026. 12 25 万 主持					

获奖情况	获全国石油和化工优秀科技工作者、中国石油和化学工业联合会科技进步奖一等奖（2018）、北京市科技奖基础类二等奖（2010）、天津市科技奖一等奖（2021）。
学术论文	1. P. Guo, Y. Ying*, <u>Dahuan Liu*</u>, One Scalable and Stable Metal-Organic Framework for Efficient Separation of CH₄/N₂ Mixture, <i>ACS Appl. Mater. Interfaces</i>, 2024, DOI: 10.1021/acsami.3c18378. 2. T. Wang, J. Fu, W. Zhang, <u>Dahuan Liu*</u>, Construction of defective hydroxyl-rich metal-organic framework for effective capture of borate ion, <i>Chem. Eng. J.</i>, 2024, 483, 149023. 3. 文一如, 付佳, <u>刘大欢*</u>。基于机器学习的 MOFs 材料研究进展: 能源气体吸附分离. <i>化工学报</i>, 2023, DOI: 10.11949/0438-1157.20231381. 4. M. Chang, C. Yang, M. Tong, J. Yang, T. Ma, S. Jiao, Q. Ma, Y. Wang, <u>Dahuan Liu*</u>, J. Zheng, A Robust Al-Based Metal-Organic Framework for Highly Efficient Natural Gas Purification, <i>Ind. Eng. Chem. Res.</i>, 2024, DOI: 10.1021/acs.iecr.3c04499. 5. J. Fu, Z.-J. Wang, <u>Dahuan Liu*</u>, Mechanistic Insight into the Direct Nonoxidative Conversion of Methane to Ethylene over Structure-Sensitive RhO₂/TiO₂ Catalysts, <i>J. Phys. Chem. C</i>, 2023, 127(46), 22557-22569. 6. J. Ren, W. Zeng, Y. Ying*, <u>Dahuan Liu</u>, Q. Yang*, Discovery of Anion-Pillared Metal-Organic Frameworks for Efficient SO₂/CO₂ Separation via Computational Screening, <i>AIChE J.</i>, 2024, DOI: 10.1002/aic.18351. 7. B. Xue, C. Yang, M. Chang, <u>Dahuan Liu*</u>, Structural design of core-shell ZIF-8@NH₂-MIL-125 photocatalyst for synergistic adsorption-photocatalytic degradation of tetracycline hydrochloride, <i>J. Alloys Compd.</i>, 2024, 973, 172850. 8. M. Chang†, J. Ren†, Y. Wei†, T. Yan, J.-X. Wang*, <u>Dahuan Liu*</u>, J.-F. Chen, Discovery of a Scalable Metal-Organic Framework with a Switchable Structure for Efficient CH₄/N₂ Separation, <i>Chem. Mater.</i>, 2023, 35(11), 4286–4296. 9. X. Zhao, L. Zhang, B. Liu*, C. Zhang, H. Zhao, C.-C. Wang*, <u>Dahuan Liu*</u>, Recycling of stainless steel pickling wastewater and polyethylene terephthalate plastic: A total-waste synthesis of metal-organic framework, <i>Progress in Natural Science: Materials International</i>, 2023, 33, 478-485. 10. Y. Wei, M. Chang, L.-X. Yun, M. Qiao, R.-K. Liu, <u>Dahuan Liu*</u>, J.-X. Wang*, J.-F. Chen, Greatly intensified guest exchange strategy for highly-efficient activation of metal-organic frameworks, <i>Small</i>, 2023, 2303848.

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12. P. Guo, Y. Ying*, M. Chang, Dahuan Liu*, One ethane-selective metal-organic framework with customized pore size and specific binding sites for efficient purification of ethylene, *Sep. Purif. Technol.*, 2023, *323*, 124465.
13. T. Wang, H. Zhao, X. Zhao*, Dahuan Liu*, Construction of defective zirconium-based metal-organic frameworks for enhanced removal of toxic selenite: performance and mechanism studies, *J. Colloid Interface Sci.*, 2023, *647*, 488-498.
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18. M. Chang†, Y. Wei†, **Dahuan Liu***, J.-X. Wang*, J.-F. Chen, A General Strategy for Instantaneous and Continuous Synthesis of Ultrasmall Metal-Organic Framework Nanoparticles, *Angew. Chem. Int. Ed.*, 2021, *60*, 26390-26396.
19. W.-Q. Tang, Y.-J. Zhao, M. Xu, J.-Y. Xu, S.-S. Meng, Y.-D. Yin, Q.-H. Zhang, L. Gu, Da-Huan Liu* and Z.-Y. Gu*, Controlling the Stacking Modes of Metal-Organic Framework Nanosheets through Host-Guest Noncovalent Interactions, *Angew. Chem. Int. Ed.*, 2021, *60*, 6920-6925.
20. M. Chang†, J. Ren†, Q. Yang*, **Dahuan Liu***. A robust calcium-based microporous metal-organic framework for efficient CH₄/N₂ separation, *Chem. Eng. J.*, 2021, *408*, 127294.