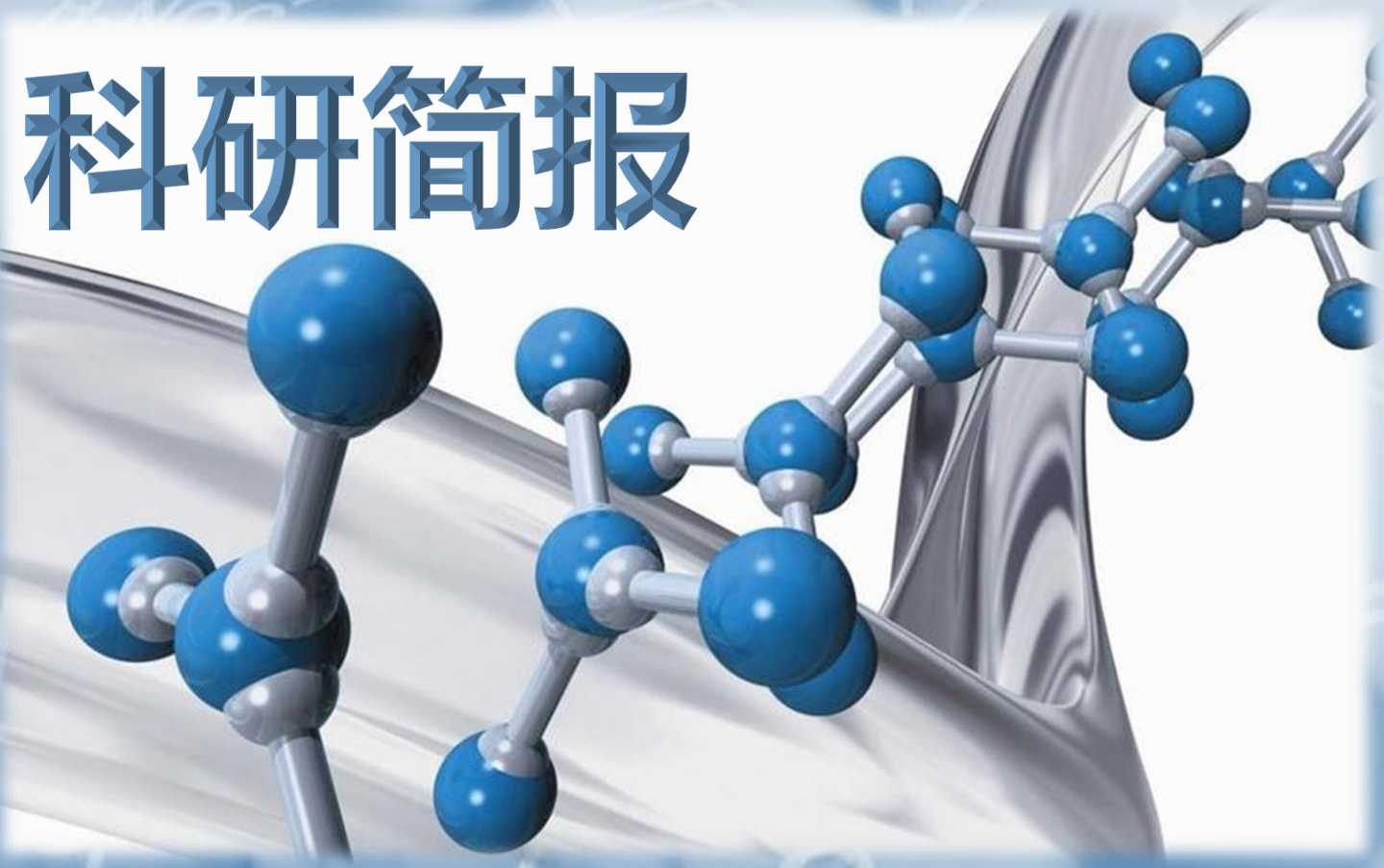
宁夏大学 NINGXIA UNIVERSITY
化学化工学院
school of chemistry and chemical Engineering

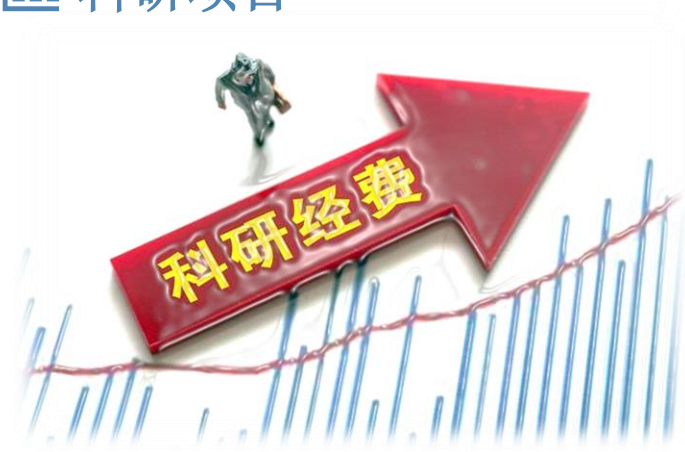
科研简报



科研与学科办公室

第十八期

科研项目



截止2025年4月15日，学院到账总经费657.80万元。其中纵向到账465.88万元， 横向到账191.92万元。 人均科研经费4.11万元（不含行政人员。注：仅统计校外竞争性到校经费）。

序号	项目负责人	到账经费（万元）	序号	项目负责人	到账经费（万元）
1	罗正鸿	90.00	**14-15**		10.00
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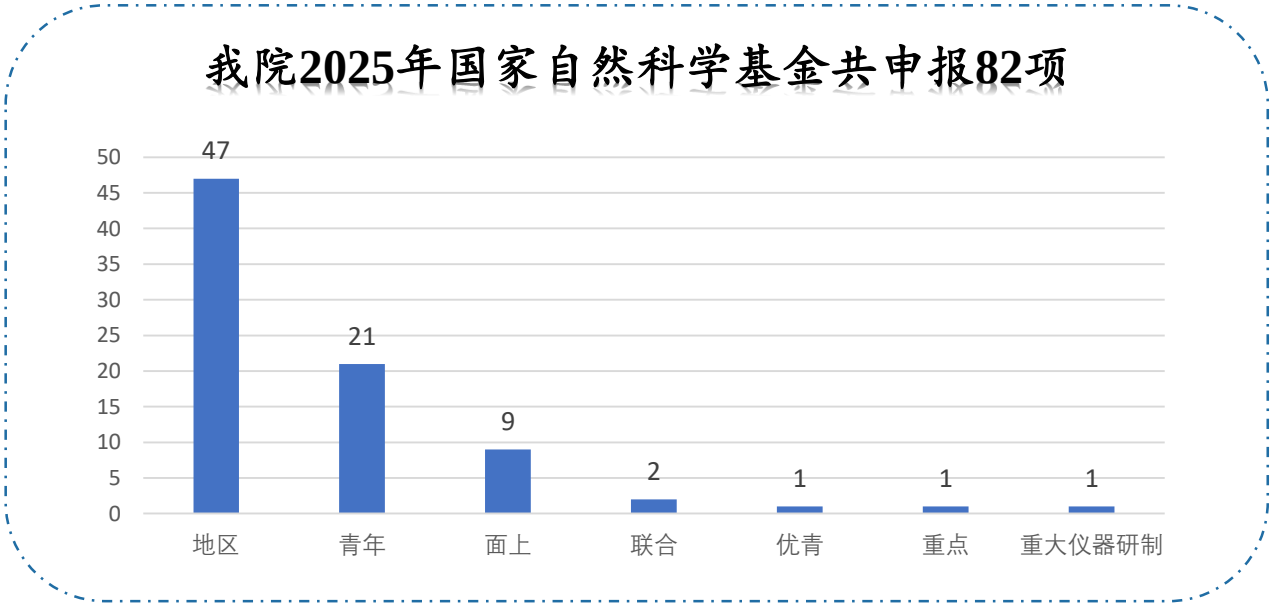
11		20.65	**47-48**		2.30
12		20.00	**49**		1.50
13		15.00	**50-160**		0.00

发表文章

序号	作者	篇数（篇）	序号	作者	篇数（篇）
1	李　丰	4	3	马晶晶	2
2	马玉龙	3	3	孟　哲	2
2	任永胜	3	3	史可人	2
2	宋旭东	3	3	苏暐光	2
2	魏逸彬	3	3	孙　辉	2
3	吉文欣	2	3	涂　涛	2
3	李典军	2	3	王胜平	2
3	梁　军	2	3	王　薇	2
3	罗发亮	2	3	张鹏飞	2
3	罗　民	2	21-41		1
3	罗正鸿	2	42-160		0

我院以第一单位发表SCI文章共67篇，其中中科院二区以上文章49篇。

科研亮点工作



科研动态

“塞上青年论坛”第27期成功举行

3月25日上午，厦门大学成康教授以“金属-分子筛双功能催化剂设计”为题做了报告。详细阐述了其研究团队在碳一催化领域的研究新成果。一是金属-分子筛在CO/CO2加氢中的应用，通过设计“氧化物-分子筛”双功能催化剂，实现目标碳氢化合物高选择性合成；二是针对烷烃异构化反应，发现控制Pt纳米粒子与酸性位距离可提升催化性能，提高异构烷烃选择性并减少Pt用量；三是针对低碳烷烃脱氢反应，发展新型RhInx@Silicalite-1催化剂，在工业条件下连续稳定运行超5800小时，活性和选择性稳定，寿命较商业催化剂高1-2个数量级，具有很高的工业应用前景。随后，谢贵明博士以“CO2加氢制甲醇Au-Cu双金属催化剂的设计制备及其反应机理研究”为题做了报告。

“国际大讲堂”第五、六讲成功举办

4月7日下午，哈萨克斯坦科学院院士、哈萨克国立大学（Al-Farabi Kazakh National University）Kusman Dossumov教授以“Catalysis and Sorption for a Sustainable Future: Research fromour Laboratory”为题，介绍了其在催化和吸附方面的研究进展。Nursaya Makayeva博士以“Innovative Greenhouse Gas Utilization Methods: A Study of CO2Capture, Methane Decomposition and Conversion”为题，介绍了团队在CO2捕集及转化方面的最新研究成果。

科研信息

自治区科技厅关于组织申报2025年度自治区创新联合体的通知

https://kjt.nx.gov.cn/kjdt/tzgg/202503/t20250324_4864019.html

项目申报单位网上填报申报书的受理时间为：2025年5月11日前完成本批次网络申报

科研亮点工作

nature catalysis

Article

https://doi.org/10.1038/s41929-025-01320-x

Cobaltosilicate zeolite beyond platinum catalysts for propane dehydrogenation

Received: 1 June 2023

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Check for updates

Hang Zhou[1,2,15], Huan Li[3,4,15], Liang Wang[1,2] ✉, Shengqi Chu[5], Lujie Liu[1], Lu Liu[1], Jizhen Qi[6], Zhouhong Ren[7], Anyu Cai[6], Yu Hui[1,8], Yucai Qin[8], Lijuan Song[8], Xuedi Qin[9], Jiaqi Shi[9], Jue Hou[9], Yongqi Ding[10], Jiabi Ma[10], Shaodan Xu[11], Xin Tao[12], Lina Li[12], Qi Yang[13], Bingwen Hu[13], Xi Liu[14] ✉, Liwei Chen[6,7], Jianping Xiao[3,4] ✉ & Feng-Shou Xiao[1,2] ✉

Propane dehydrogenation has been used industrially as a non-oil-based propylene production process, but it strongly depends on precious-metal catalysts such as supported Pt materials, which dominate most propane dehydrogenation processes currently used in industry. Catalysts with earth-abundant metals have been explored with a view to replacing Pt, but their performances remain inadequate. Here we report a cobaltosilicate zeolite catalyst, which has solely tetrahedral cobalt sites and none of the unstable cobalt species in the zeolite crystals that are characteristic of conventional cobaltosilicate materials. This catalyst exhibits properties that could be attractive for industrial application, including sufficient propylene productivity, high stability and facile regenerability. Moreover, this system outperforms the benchmark supported Pt–Sn catalysts under equivalent conditions.

Propylene, one of the most important basic chemicals in industry, has an annual global demand of over 120 million tonnes[1]. Although propylene has been produced on a large scale from naphtha cracking, there is still a gap between the demand and supply of propylene[2–4]. Non-oil-based technologies are an attractive alternative, and propane dehydrogenation (PDH) is particularly interesting because of the large-scale exploitation of shale gas[5–8]. The recently developed non-oxidative route for PDH strongly relies on a supported Pt-nanoparticle catalyst combined with SnO_2 as promoter[8–11], and this technology has been commercialized by Honeywell UOP under the name Oleflex. In 2020, such $PtSn/Al_2O_3$ catalysts enabled the dehydrogenation of more than 10 million tonnes of propane[8]. Recently, further improvements to Pt catalysts were achieved using promoters such as Zn, La and Ga (refs. 12–17). However, the high cost of Pt remains a problem. More importantly, coke formation occurs easily on the Pt nanoparticles as a result of deep dehydrogenation. Catalyst regeneration by

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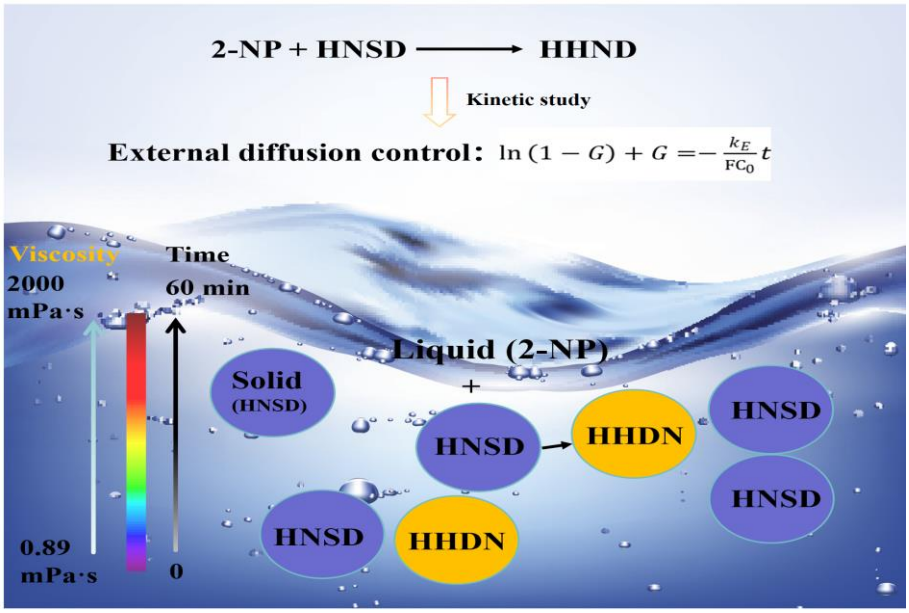
DOI: 10.1038/s41929-025-01320-x 发表于《Nature Catalysis》

刘晰等

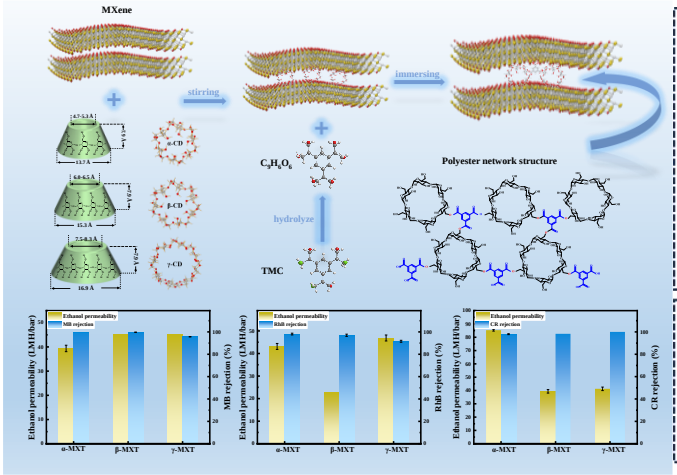
科研亮点工作

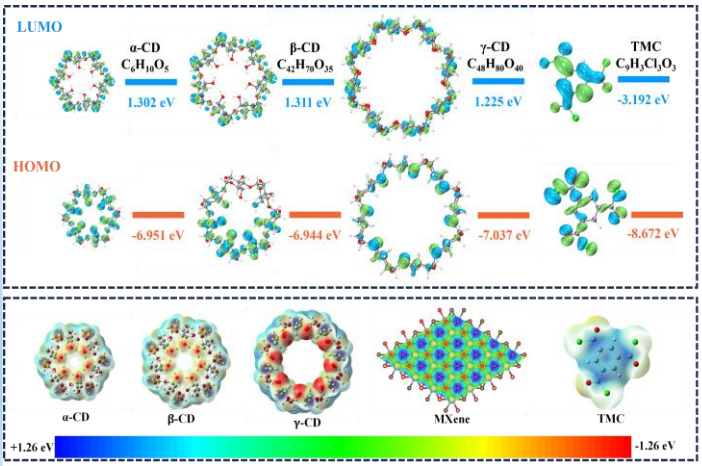
扩散控制下时变黏度体系中固-液相重氮偶联反应动力学研究



DOI: 10.1016/j.ces.2025.121286 发表于《Chemical Engineering Science》魏慧龙，罗正鸿等

通过环糊精的酯化反应在 $Ti_3C_2T_x$ MXene 层间构建高度交联的聚酯网络，有效抑制层间膨胀并增强结构稳定性，从而显著提升膜在有机溶剂环境下的分离性能和使用耐久性。



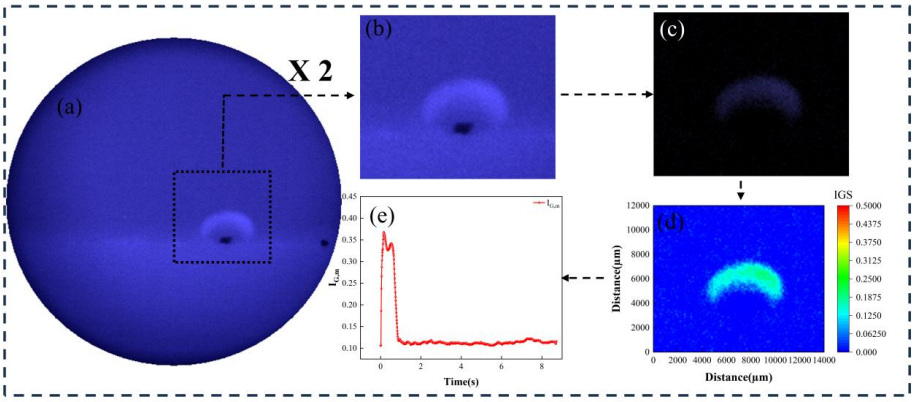


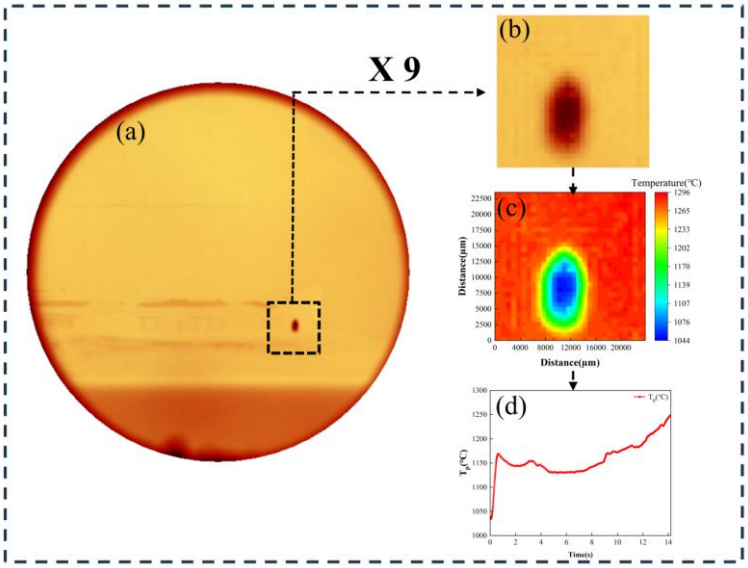
DOI: 10.1016/j.memsci.2025.123859 发表于《Journal of Membrane Science》

魏逸彬等

科研亮点工作

Visualization and modelling study of reaction and heat transfer during gasification of single coal/char particle on slag wall





DOI: 10.1016/j.combustflame.2025.114063

发表于《Combustion and Flame》

宋旭东、白永辉等

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school of chemistry and chemical Engineering

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科研简报

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