刘磊
108

教授 博士生导师 硕士生导师

性别：男

毕业院校：匹兹堡大学

学历：博士研究生毕业

学位：博士

在职信息：在职

所在单位：化学与化工学院

入职时间： 2012-06-04

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**个人简介：**

刘磊，男，1981年11月生，教授、博士生导师

入选国家优青、教育部新世纪优秀人才、山东省杰青、山东大学齐鲁青年学者

研究方向：课题组长期从事有机合成和药物化学研究，主要研究兴趣为不对称催化与合成、天然产物的全合成、抗肿瘤活性分子的发现。

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【学习及工作经历】

教育经历：

| | | | |
|---|---|---|---|
| 2006.08-2011.03 | 美国匹兹堡大学 | 博士 | 导师：Paul E. Floreancig 教授 |
| 2003.09-2006.06 | 兰州大学 | 硕士 | 导师：王锐 院士 |
| 1999.09-2003.06 | 兰州大学 | 学士 | 导师：王锐 院士 |

工作经历：

| | | |
|---|---|---|
| 2012.06-至今 | 山东大学 | 教授、博士生导师 |
| 2011.03-2012.04 | 美国哈佛大学 | 博士后 导师：Yoshito Kishi 教授 |

【主讲课程】

《有机化学》（本科生）

【研究领域和兴趣】

（1）不对称催化与合成：基于氧化反应的不对称合成策略研究

（2）活性天然产物的全合成及构效关系研究

（3）药物化学：具有生物活性的小分子试剂的设计和发现研究

【科研项目】

在研项目

| | | |
|---|---|---|
| 国家优秀青年基金 | 2018-2021 | 负责人 |
| 霍英东青年教师基金 | 2016-2019 | 负责人 |
| 国家自然科学基金面上项目 | 2015-2018 | 负责人 |
| 广西师大国重室开放基金 | 2016-2018 | 负责人 |

结题项目

山东省“杰出青年基金” 2015-2017 负责人

深圳市科技计划项目 2015-2017 负责人

山东大学交叉学科培育基金 2015-2017 负责人

教育部“新世纪优秀人才” 2014-2016 负责人

“齐鲁青年学者”启动经费 2012-2016 负责人

国家自然科学基金青年项目 2013-2015 负责人

山东省优秀中青年科学家科研奖励基金 2013-2015 负责人

【人才计划和获奖情况】

国家基金委优秀青年基金（2017）

霍英东教育基金奖励（2016）

Thieme Chemistry Journal Award (2016)

山东省自然科学基金“杰出青年基金”(2014)

教育部“新世纪优秀人才”（2013）

“齐鲁青年学者”（2012）

国家优秀自费留学生奖学金（中国驻纽约总领事馆）（2010）

中国科学院奖学金（2005）

【主要论著】

山东大学独立研究工作

2019年

38. Catalytic enantioselective oxidative coupling of saturated ethers with carboxylic acid derivatives. Wang, G.; Xin, X.; Wang, Z.; Lu, G.; Ma, Y.; **Liu, L.*** Nature Commun. 10.1038/s41467-019-08473-x. (Featured in Nature Communications Editors' Hig Webpage)

2018年

37. Three-component oxyarylation of alkenes enables access to $C_3$-sul dihydrobenzofurans. Feng, G.; Sun, S.; Liu, G.; Long, H.; **Liu, L.*** Org. Lett. **2018**. 20, 75 20 most downloaded article for Nov 2018)

36. Metal-free three-component oxyalkynylation of alkenes. Li, Y.; Lu, R.; Sun, S.; **Liu,** Lett. **2018**. 20, 6836.

35. Catalytic asymmetric cross-dehydrogenative coupling of 2H-chromenes and aldehyde X.; Liu, X.; Sun, S.; Meng, Z.; **Liu, L.*** Chin. J. Chem. **2018**, 36, 1187. (Dedicated to P Xiyan Lu on the occasion of his 90th birthday)

34. Iron(II)-catalyzed site-selective functionalization of unactivated C-H bonds guided by radical. Guan, H.; Sun, S.; Mao, Y.; Chen, L.; Lu, R.; Huang, J.; **Liu, L.*** Angew. Chem. **2018**, 57, 11413.

33. Copper-catalyzed oxidative cross-dehydrogenative coupling of 2H-chromenes and alkynes. Yang, F.; Li, Y.; Floreancig, P. E.*; Li, X.*; **Liu, L.*** Org. Biomol. Chem. **2018**, 16, 5

32. 饱和开链醚的氧化碳氢炔基化研究. Guan, H.; Chen, L.; **Liu, L.*** Acta Chimica Sinica **2** 440. (invited contribution)

31. Redox deracemization of 1,3,4,9-tetrahydropyrano[3,4-b]indoles. Lu, R.; Li, Y.; Zhao, Wang, S.; **Liu, L.*** Chem. Commun. **2018**, 54, 4445.

30. Direct Oxidative C-H Alkynylation of N-Carbamoyl Tetrahydroisoquinoline Dihydroisoquinolines. Chen, L.; Sun, C.; Feng, G.; Cao, M.; Zhao, S.; Yan, J.; Wan, **L.*** Org. Biomol. Chem. **2018**, 16, 2792.

29. A novel tetrahydroisoquinoline (THIQ) analogue induces mitochondria-dependent Ap Sun, X.; Liu, M.; Gao, L.; Mao, Y.; Zhao, D.; Zhang, J.; **Liu, L.*** Eur. J. Med. Chem. **2018**, 1

28. Efficient Access to Chiral Benzo[c]chromenes via Asymmetric Transfer Hydrogen Ketals. Li, Y.; Wan, M.; Sun, S.; Fu, Z.; Huang, H.; **Liu, L.*** Org. Chem. Front. **2018,** 5, 128(

2017年

27. Oxidative C-H functionalization of N-carbamoyl 1,2-Dihydroquinolines. Liu, Z.; Chen, L Liu, K.; Zhao, J.; Xu, M.; Feng, L.; Wan, R.; Li, W.; **Liu, L.*** Org. Biomol. Chem. **2017,** 15**,** 7

26. Regio- and Diastereoselective Cross-Dehydrogenative Coupling of Tetrahydropyridir 1,3-Dicarbonyl Compounds. Long, H.; Wang, G.; Lu, R.; Xu, M.; Zhang, K.; Qi, S.; He, Y.; **Liu, L.*** Org. Lett. **2017**, 19, 2146.

25. Organocatalytic Redox Deracemization of Cyclic Benzylic Ethers Enabled by An "Acet Strategy. Wan, M.; Shu, S.; Li, Y.; **Liu, L.*** Angew. Chem. Int. Ed. **2017**, 56, 5116.

**2016年**

24. Wang, G.; Mao, Y.; **Liu, L.*** Diastereoselectively Complementary C-H Function Enables Access to Structurally and Stereochemically Diverse 2,6-Substituted Piperidine Lett. **2016,**18, 6476.

23. Wang, G.; Sun, S.; Mao, Y.; Xie, Z.; **Liu, L.*** Chromium (II) Catalyzed Enantios Arylation of Ketones. Beilstein. J. Org. Chem. **2016**, 12, 2771. (Invited by Professor Te Yoon for Thematic Series "Strategies in Asymmetric Synthesis")

22. Sun, Y.; Wang, G.; Chen, J.; Liu, C.; Cai, M.; Zhu, R.*; Huang, H.*; Li, W.*; **Liu, L.*** A Pr Oxidative C-H Functionalization of N-Carbamoyl Tetrahydro-beta-Carbolines with Diverse Potassium Trifluoroborates. Org. Biomol. Chem. **2016**, 14, 9431.

21. Xie, Z.; Zan, X.; Sun, S.; Pan, X.; **Liu, L.*** Organocatalytic Enantioselective Cross-Dehydrogenative Coupling of N-Carbamoyl Cyclic Amines with Aldehydes. Org. Lett. **2016**, 3944.

20. Xie, Z.; Liu, X.; **Liu, L.*** Copper-Catalyzed Aerobic Enantioselective Cross-Dehydrogen Coupling of N-Aryl Glycine Esters with Terminal Alkynes. Org. Lett. **2016**, 18, 2982. (Highlig by Synfacts)

19. Sun, S.; **Liu, L.*** Catalytic Enantioselective Alkynylation of Tetrahydroisoquinoline-Base Acyl Hemiaminals. Synthesis **2016**, 48, 2627 (Invited for specific topic "Asymmetric Synthes Erick Carreira)

18. Xie, Z.; Jia, J.; Liu, X.; **Liu, L.*** Copper(II) Triflate-Catalyzed Aerobic Oxidative C-H Functionalization of Glycine Derivatives with Olefins and Organoboranes. Adv. Synth. Catal. **2016**, 358, 919.

17. Liu, G.; Qian, J.; Hua, J.; Cai, F.; Li, X.; **Liu, L.*** An Economical Synthesis of Substituted Quinoline-2-Carboxylates through the Potassium Persulfate-Mediated Cross-Dehydrogenat Coupling of N-Aryl Glycine Derivatives with Olefins. Org. Biomol. Chem. **2016**, 14, 1147.

**2015年**

16. Chen.J.; Wan, M.; Hua, J.; Sun, Y.; Lv, Z.; Li, W.*; **Liu, L.*** TBHP/TFA Mediated Oxidati Cross-Dehydrogenative Coupling of N-Heterocycles with Aldehydes. Org. Biomol. Chem. **2015**, 13, 11561. (Highlight by Synfacts)

15. Wan, M.; Lou,H.; **Liu, L.*** C1-Benzyl and benzoyl isoquinoline synthesis throughdirect c cross-dehydrogenative coupling with methyl arenes. Chem. Commun. **2015**, 51, 13953. (Hi by Synfacts)

14. Sun, S.; Mao,Y.; Lou, H.; **Liu, L.*** Copper(II)/amine synergisticallycatalyzed enantiosele alkylation of cyclic N-acyl hemiaminals withaldehydes. Chem. Commun. **2015**, 51, 10691.

13. Liu, X.; Sun,S.; Meng, Z.; Lou, H.; **Liu, L.*** Organocatalytic asymmetricC-H vinylation ar arylation of N-acyl tetrahydroisoquinolines. Org. Lett. **2015**, 17, 2396. (Top 20 most downlo article for May2015)

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11. Sun, S.; Li,C.; Floreancig, P. E.; Lou, H.; **Liu, L.*** Highly enantioselectivecatalytic cross-dehydrogenative coupling of N-carbamoyl tetrahydro isoquino-lines and terminal alkynes. C Lett. **2015**, 17, 1684.(Highlight by Synfacts)

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**2014年**

9. Chen, W.;Xie, Z.; Zheng, H.; Lou, H.*; **Liu, L.*** Structurally Diverseα-Substituted Benzopy Synthesis through A Practical Metal-Free C($sp^3$)-HFunctionalization. Org. Lett. **2014**, 16, 5

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7. Wan, M.; Meng,Z.; Lou, H.; **Liu, L.*** Practical and Highly Selective C-H Functionalizatione Structurally Diverse Ethers. Angew. Chem. Int. Ed. **2014**, 53,13845.
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6. Yang, J.; Sun, S.; Zeng, Z.; Zheng, H.; Lou, H.; **Liu, L.*** Aneconomic and Environmentall Friendly Oxidative Biaryl Coupling Promoted byActivated $MnO_2$. Org. Biomol. Chem. **2014**, 12**,**7774.

5. Pan, X. H.;Hu, Q. W.; Chen, W. F.; Liu, X. G.; Sun, B.; Huang, Z. L.; Zeng, Z. Y.; Wang,L. Zhao, D.; Ji, M.; **Liu, L.***; Lou, H.* Copper(II) CatalyzedCross-Dehydrogenative Coupling of Benzylic Ethers with Simple Carbonyl Compoundsby $Na_2S_2O_8$. Tetrahedron **2014**, 70,3447

4. Chen, W. F.;Zheng, H. B.; Pan, X. H.; Xie, Z. Y.; Zan, X.; Sun, B.; **Liu, L.***;Lou, H.* A Met Cross-Dehydrogenative Coupling of N-Carbamoyl Tetrahydroispquinolineby Sodium Persulfate. Tetrahedron Lett. **2014**, 55, 2879.

3. Xie, Z. Y.; **Liu,L.***; Chen, W. F.; Zheng, H. B.; Xu, Q. Q.; Yuan, H. Q.; Lou, H.* PracticalM Free C(sp3)-H Functionalization: Construction of Structurally Diverse a-SubstitutedN-Benzy N-Allyl Carbamates. Angew. Chem. Int. Ed. **2014**, 53,3904. (Highlight by Chinese J Org Ch

2. Meng, Z. L.; Sun, S. T.; Yuan, H. Q.; Lou, H. X.*; **Liu, L.*** Catalytic Enantioselective Oxid Cross-Coupling of Benzylic Ethers withAldehydes. Angew. Chem. Int. Ed. **2014**, 53, 543.
(selectedas **"**Hot Paper**"** by AngewChem/Highlightby Synfact**,** 2014**,** 341)

**2013年**

1. Liu, X. G.; Sun, B.; Xie, Z. Y.; Qin, X. J.; **Liu, L.***; Lou, H. X.* Manganese dioxide-Methanesulfonic Acid Promoted Direct DehydrogenativeAlkylation of $sp^3$ C–H Bonds Adjac Heteroatom. J. Org. Chem. **2013**, 78, 3104.

哈佛大学博士后研究工作（2011-2012）

13. **Liu, L.**;Henderson, J. A.; Yamamoto, A.; Brémond, P.; Kishi, Y. Synthesis of alcoholsfro Fluorophenylsulfones and Dialkylboranes: Application to theC14-C35 Building Block of E7389. Org. Lett. **2012**, 14,2262.

匹兹堡大学攻读博士期间工作（**2006-2011**）

12. **Liu,L.**; Floreancig, P. E. Stereoselective Synthesis of Tertiary Ethersthrough Geometric Control of Highly Substituted Oxocarbenium Ions. Angew. Chem. Int. Ed. **2010**, 49, 5894.
(Highlighted in SynFacts**2010**, 1152 and Synstory **2010**, A101)

11. **Liu, L.**; Floreancig, P. E. Structurally and Stereochemically Diverse TetrahydropyranSyr through Oxidative Carbon–Hydrogen Bond Activation. Angew. Chem. Int. Ed. **2010**, 49, 306
(Selected as "Hot Paper" in Angew.Chem. Int. Ed.)

10. **Liu, L.**; Floreancig, P. E. Stereoselective Heterocycles Synthesis through OxidativeCarb Hydrogen Bond Activation. Curr. Opin. Drug. Discov. Devel. **2010**,13, 733.

9. **Liu, L.**;Floreancig, P. E. DDQ-Catalyzed Reactions Employing $MnO_2$ as A StoichiometricOxidant. Org. Lett. **2010**, 12, 4686.

8. **Liu, L.**;Floreancig, P. E. Cyclization Reactions through DDQ-Mediated Vinyl OxazolidinoneOxidation. Org. Lett. **2009**, 11, 3152. (Highlightedin SynFacts **2009**, 998)

7. Tu, W.; **Liu,L.**; Floreancig, P. E. Diastereoselective Tetrahydropyrone Synthesis throughTransition-Metal-Free Oxidative Carbon–Hydrogen Bond Activation. Angew. Chem. Ed. **2008**, 47, 4184.

兰州大学攻读硕士期间工作（**2003-2006**）

6. **Liu, L.**;Wang, R.; Kang, Y.-F.; Cai, H.-Q.; Chen, C. Highly Enantioselective Addition of Phenylacetylene to Ketones Catalyzed by Bis(hydroxycamphorsulfonamide)-copper(II) Complex. Synlett. **2006**, 8, 1245.

5. **Liu, L.**;Wang, R.; Kang, Y.-F.; Chen, C.; Xu, Z.-Q.; Zhou, Y.-F.; Ni, M.; Cai, H.-Q.;Gong, M Highly Enantioselective Phenylacetylene Addition to Aromatic KetonesCatalyzed by Cinchc Alkaloid-Aluminum Complexes. J. Org. Chem. **2005**,70, 1084.

4. **Liu, L.**;Kang, Y.-F.; Wang, R.; Zhou, Y.-F.; Chen, C.; Ni, M.; Gong, M.-Z. EnantioselectiveAlkynylation of Aromatic Ketones Promoted by (S)-Phenylalanine-derived Alcohol. Tetrahedron: Asymmetry **2004**, 15, 3757.

3. Kang, Y.-F.; **Liu,L.**; Wang, R.; Zhou, Y.-F.; Yan, W.-J. Enantioselective Alkynylation ofAro Ketones Catalyzed by New Chiral Oxazolidine Ligands. Adv. Synth.Catal. **2005**, 347, 243.

2. Kang, Y.-F.; **Liu,L.**; Wang, R.; Yan, W.-J.; Zhou, Y.-F. The Use of Bifunctional CatalystSys the Asymmetric Addition of Alkynylzinc to Aldehydes. Tetrahedron:Asymmetry **2004**, 15, 31

1. Kang, Y.-F.; **Liu,L.**; Wang, R.; Ni, M.; Han, Z.-J. Enantioselective Addition of Diethylzincto Aromatic Aldehydes Catalyzed by New Chiral Oxazolidine Ligand. Synth.Commun. **2005**, 3 1819.

【加入我们】

欢迎对有机化学和药物化学感兴趣的本科生、硕士生和博士后加入课题组！