

Program

Thieme Organic Chemistry Symposia China Roadshow 2024



Xiamen University

08:30-17:00 / 06 November 2024

Chemistry Lecture Hall, Xiamen University
厦门大学化学报告厅



Thieme



Content

Welcome to Xiamen University	03
Welcome Messages	04
Agenda	06
Symposium Presidents	07
Abstracts and Biographies <i>(In order of appearance)</i>	08
Azetidines, Azetines, and Oxetanes: New Cycloadditions of Imines and Carbonyls Prof. Corinna Schindler, University of British Columbia, Canada	08
External Tuning of Catalytic Enamine Intermediates Prof. San-Zhong Luo, Tsinghua University	10
Divergent Asymmetric Catalysis and Synthesis Prof. Zhi-Hui Shao, Yunnan University	12
Functional Small Molecules via Synthetic Electrochemistry Prof. Ke-Yin Ye, Fuzhou University	14
Design and Applications of Chiral Iron Complexes for Asymmetric Catalysis Prof. Thierry Ollevier, Université Laval, Canada	16
De novo construction of chiral N-heterocycle via annulation-rearrangement strategy Prof. Xiu-Ling Cui, Zhengzhou University / Huaqiao University	18
Palladium Involved Synergistic Catalysis for Stereodivergent C(sp ³)-C(sp ³) Couplings Prof. Wei-Wei Zi, Nankai University	20
Unlocking new chemical space via selective catalysis Prof. Debabrata Maiti, Indian Institute of Technology Bombay	22
Efficiency in Organic Synthesis and Total Synthesis of Natural Products Prof. Pei-Qiang Huang, Xiamen University	24
Publish with us	26
Select Crowd Review	27
Thieme Chemistry Prizes and Awards	28

Welcome to Xiamen University

Xiamen University, founded in 1921 by renowned Chinese philanthropist Tan Kah Kee, is a prestigious comprehensive university located in Xiamen, Fujian Province, China. Known for its beautiful campus and strong academic programs, the university excels in fields such as chemistry, economics, management, and marine science. It has a vibrant international community, extensive research facilities, and a commitment to interdisciplinary collaboration, making it one of China's leading institutions for higher education and research.

The College of Chemistry and Chemical Engineering at Xiamen University, established in 1991 from the Chemistry Discipline founded in 1921, is recognized as one of China's leading chemistry institutions. Generations of distinguished chemists, including former Chinese Academy of Sciences President Professor Jiaxi Lu, have contributed to its prominence.

The college comprises three departments: Chemistry, Chemical Biology, and Chemical and Biochemical Engineering, with research strengths in physical chemistry, synthetic chemistry, analytical chemistry, and materials chemistry. Among its 192 faculty members, 114 are full professors, nine are Members of the Chinese Academy of Sciences, and 28 have received the Distinguished Young Investigator Grant from the National Science Foundation of China (NSFC). Seven Creative Research Groups have also been funded by NSFC.

The college emphasizes undergraduate and graduate education through two national centers: the National Demonstration Center of Education for Chemistry Practical and the National Training Base for Future Science Teachers. In September 2023, over 800 students enrolled in Bachelor's, Master's, and PhD programs.

The college boasts several national and provincial research platforms, including the State Key Laboratory of Physical Chemistry for Solid Surfaces, which has been ranked the top laboratory nationwide in chemistry and chemical engineering for five consecutive evaluations by the Ministry of Science & Technology of China. Additionally, the Tan Kah Kee Innovation Laboratory (IKKEM), established in 2019, focuses on energy materials and aims to drive technological breakthroughs and promote commercialization of high-tech achievements.

Committed to advancing chemical science, the college is expanding into interdisciplinary fields at the intersection of materials, biology, energy, and environmental sciences. It fosters the integration of chemistry and chemical engineering, with a focus on translating fundamental research into practical applications, while building a collaborative and innovative platform for education and research.



Webpage:
<https://www.xmu.edu.cn/>
<https://chem.xmu.edu.cn/>

Welcome - Willkommen - 欢迎

Dear Colleagues,

Thieme is delighted to be co-organizing this Organic Chemistry Symposium in collaboration with **Xiamen University**. We would like to give special thanks to our hosts **Professor Hai-Chao Xu** his colleagues for agreeing to co-host this symposium at Xiamen University. It is the first time for Thieme Chemistry to have this kind of symposia series in China where we are joined by leading scientists/editors from internationally as well as locally.

The chemical sciences portfolio consists of 11 journals: *Synthesis*, *Synlett*, *SynOpen*, *Synfacts*, *Organic Materials*, *Planta Medica*, *Pharmacopsychiatry*, *Drug Research*, *Pharmaceutical Fronts*, *Chinese Medicine and Natural Products*, and the newly announced launch of open access journal, *Sustainability & Circularity Now*. More details can be read on our website. In addition, Thieme also publishes databases such as *Science of Synthesis*, *Roempp and Pharmaceutical Substances*. We are a family run publishing house, established in 1886, with headquarters based in Stuttgart, Beijing, New York, Rio de Janeiro, London, and Delhi. Our Editorial colleagues are proud to provide services to our authors, reviewers, readers, and editors from those offices.

We offer one of the fastest times from submission to first decision on manuscripts via our innovative peer review system called Select Crowd Review. This new method of peer review has proven to be fast, efficient, and fair. We would like to encourage postdocs and early career chemists to try this new method of peer review. We are also lucky to have one of the most high-profile networks of organic chemists in the world. We are very grateful to **Professor Hongli Bao**, **Fujian Institute of Research on the Structure of Matter, CAS Fuzhou**, for her introduction to her good friends at Xiamen University.

We are pleased to be joining colleagues from China to share our exciting ideas in research with this audience. Plus, we are delighted to have this opportunity to share our experiences of scientific publication, whether as authors or editors, so that we can understand more clearly how our journals can best serve the global scientific community. Our motto at Thieme is to support our community for “Better Health and Better Life”.

We would like to thank all speakers, organizers, editors, and committee members especially our Editorial Board and Advisory Board members. We hope that all presentations will stimulate exchange of ideas, experiences, and potentially foster future research collaborations.

Welcome to what promises to be an exciting meeting!

Veronika Spinka

Senior Vice President, Thieme Science



Kathleen Too

Senior Vice President, Thieme Chemistry
Managing Director, Thieme China



Stuart Beardsworth

Senior Publisher, Biosciences Journals



Yingxiao Cai

Publisher Acquisitions, Thieme Chemistry



Agenda

Time	Speaker	Title of lecture
08:30 – 08:45		Welcome from the host and inaugural speech
08:45 – 09:00	Kathleen Too Senior Vice President, Thieme Chemistry Managing Director, Thieme China	Thieme Presentation, Introduction of new journals + Group Photo
09:00 – 09:35	Prof. Corinna Schindler University of British Columbia, Canada	Azetidines, Azetines, and Oxetanes: New Cycloadditions of Imines and Carbonyls
09:35 – 10:10	Prof. Sanzhong Luo , Tsinghua University 罗三中 教授 / 清华大学	External Tuning of Catalytic Enamine Intermediates
10:10 – 10:40	Coffee Break	
10:40 – 11:15	Prof. Zhihui Shao , Yunnan University 邵志会 教授 / 云南大学	Divergent Asymmetric Catalysis and Synthesis
11:15 – 11:50	Prof. Ke-Yin Ye , Fuzhou University 叶克印 教授 / 福州大学	Functional Small Molecules <i>via</i> Synthetic Electrochemistry
11:50 – 13:00	Lunch	
13:00 – 13:35	Prof. Thierry Ollevier Université Laval, Canada	Design and Applications of Chiral Iron Complexes for Asymmetric Catalysis
13:35 – 14:10	Prof. Xiuling Cui Zhengzhou University / Huaqiao University 崔秀灵 教授 / 郑州大学 / 华侨大学	<i>De novo</i> construction of chiral N-heterocycle <i>via</i> annulation-rearrangement strategy
14:10 – 14:45	Prof. Weiwei Zi , Nankai University 资伟伟 教授 / 南开大学	Palladium Involved Synergistic Catalysis for Stereodivergent C(sp ³)-C(sp ³) Couplings
14:45 – 15:15	Coffee Break	
15:15 – 15:50	Prof. Debabrata Maiti , Indian Institute of Technology Bombay, Indian	Unlocking new chemical space via selective catalysis
15:50 – 16:25	Prof. Pei-Qiang Huang , Xiamen University 黄培强 教授 / 厦门大学	Efficiency in Organic Synthesis and Total Synthesis of Natural Products
16:25 – 16:55	Panel Discussion: What do Editors look for when they assess a paper?	
16:55 – 17:00	Prof. Hongli Bao , FIRSM, CAS 鲍红丽 教授 / 福建物质结构研究所 Dr. Kathleen Too	Closing Remarks

Symposium Presidents

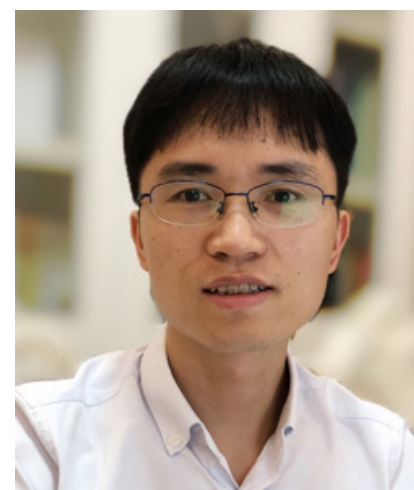


PROFESSOR

Hong-Li Bao

Fujian Institute of Research on the Structure of Matter
Chinese Academy of Sciences
Associate Editor, Synthesis

Lab webpage:
<http://www.fjirsm.ac.cn/baohongli/>



PROFESSOR

Hai-Chao Xu

School of Chemistry and Chemical Engineering
Xiamen University

Lab webpage:
<https://hcxu.xmu.edu.cn/>



Abstracts and Biographies



PROFESSOR

Corinna Schindler



Department of Chemistry, University of British Columbia, Canada
Associate Editor, Synthesis

Corinna was born and raised in Schwaebisch Hall, Germany. As an undergraduate at the Technical University of Munich, she worked in the area of organometallic chemistry. Upon completion of her Diploma Thesis at the Scripps Research Institute in La Jolla in the laboratory of K.C. Nicolaou, she joined the research group of Erick M. Carreira at the ETH Zurich in Switzerland for her graduate studies. During her time in the Carreira group Corinna worked on developing novel synthetic methodologies as well as successful synthetic strategies to access Banyaside A and Microcin SF608. For her postdoctoral studies, Corinna joined the laboratory of Eric N. Jacobsen at Harvard University as a Feodor Lynen Postdoctoral Fellow to work in the field of asymmetric catalysis.



Azetidines, Azetines, and Oxetanes: New Cycloadditions of Imines and Carbonyls

Corinna S. Schindler

University of British Columbia, 2036 Main Mall, Vancouver, BC V6T 1Z2

ych198151@cqu.edu.cn

Four-membered nitrogen heterocycles such as azetidines possess unique properties that make them desirable for drug discovery and synthesis applications. However, synthesis of these compounds is challenging, limiting their applicability. While oxetanes and cyclobutanes are commonly synthesized by highly atom-economical light-mediated [2+2] reactions, this powerful methodology remains limited for the synthesis of azetidines via the aza Paternò-Büchi reaction. Herein we report the development of visible-light mediated intermolecular aza Paternò-Büchi reactions, harnessing the triplet state of unique cyclic oximes, specifically 2-isoxazoline-3-carboxylates, as imine equivalents for the synthesis of unique azetidine and azetine products. Following energy transfer from an iridium photocatalyst, these cyclic oximes initiate [2+2] reactions with unactivated alkenes and alkynes, allowing access to a broad range of azetidines and azetines with excellent yield. This method is mild, operationally simple, and broadly applicable. Importantly, these products can be easily converted to free monocyclic azetidines, offering a new approach to these desirable targets.

References

1. Wearing, E.R.; Blackmun, D.E.; Becker, M.R.; Schindler, C.S. *J. Am. Chem. Soc.* **2021**, *143*, 16235-16242.
2. Becker, M.R.; Wearing, E.R.; Schindler, C.S. *Nat. Chem.* **2020**, *12*, 898-905.
3. Becker, M.R.; Richardson, A.D.; Schindler, C.S. *Nat. Commun.* **2019**, DOI: 10.1038/s41467-019-13072-x.
4. Wearing, E.R.; Yeh, Y.-C.; Terrones, G.G.; Parikh, S.G.; Kevlishvili, I.; Kulik, H.J.; Schindler, C.S. *Science* **2024**, *384*, 1468-1476.



Lab webpage:
<https://www.schindlerresearchgroup.com/>

PROFESSOR

San-Zhong Luo



Center of Basic Molecular Sciences
Tsinghua University

Sanzhong Luo received his B.S. (1999), M.S. (2002) and Ph.D. (2005) from Zhengzhou University, Nankai University and the Institute of Chemistry, Chinese Academy of Sciences (ICCAS), respectively. He was a visiting scholar in the Ohio State University (2004-2005) and Stanford University (2009). He worked in ICCAS during 2005-2018 and has been professor at Tsinghua University since 2018. His laboratory focuses on asymmetric catalysis, bio-inspired catalysis and machine learning in chemistry.



External Tuning of Catalytic Enamine Intermediates

Sanzhong Luo

Center of Basic Molecular Sciences (CBMS), Department of Chemistry, Tsinghua University, Beijing, 100084, China
luosz@tsinghua.edu.cn

External tuning of catalytic intermediates represents an underdeveloped, yet fundamental approach to expand the catalytic spaces of existing catalysis. In this lecture, I'd like to present our recent advances on external tuning of chiral enamine intermediate using either photochemical or electrochemical approaches. Both electron- and energy transfer can be harnessed to enable unprecedented transformations such as dehydrogenative alkylation, deracemization of α -branched aldehydes and oxidative C-X bond formations.

Keywords: organocatalysis, enamine, catalytic intermediate, photoredox, electrochemical

References

- [1] Zhu, L.; Wang, D.; Jia, Z.; Lin, Q.; Huang, M.; Luo, S. *ACS Catal.* **2018**, 8, 5466-5484.
- [2] (a) Huang, M.; Zhang, L.; Pan, T.; Luo, S. *Z. Science* **2022**, 375, 869-874. (b) Jia, Z.; Zhang, L.; Luo, S. *J. Am. Chem. Soc.* **2022**, 144, 10705-10710. (c) Lin, Q.; Duan, Y.; Li, Y.; Jian, R.; Yang, K.; Jia, Z.; Xia, Y. Zhang, L.; Luo, S. *Nat. Commun.* **2024**, 15, 6900; (d) Jia, Z.; Cheng, L.; Zhang, L.; Luo, S. *Nat. Commun.* **2024**, 15, 4044. (e) Zhang, S.; Cheng, L.; Qi, J.; Jia, Z.; Zhang, L.; Jiao, L.; Guo, X.; Luo, S. *Z. CCS Chem.* **2024**, 10.31635/ccschem.024.202404035



Lab webpage:
<https://luoszgroup.com/>

PROFESSOR

Zhi-Hui Shao



School of Chemical Science and Technology
Yunnan University

Zhihui Shao obtained his PhD from Lanzhou University in 2004 under the supervision of Professor Yongqiang Tu and Professor Hongbin Zhang. He carried out his postdoctoral studies with Professor Stephen Hanessian at University of Montreal (2004–2006), and with Professor Albert, S. C. Chan at The Hong Kong Polytechnic University (2006–2007), respectively. In 2007, he joined the faculty of the School of Chemical Science and Technology at Yunnan University. In 2020, he was appointed as “Cheung Kong Scholar” Professorship by Ministry of Education. His current research interests focus on asymmetric catalysis as well as asymmetric synthesis of natural products and chiral drugs.

Divergent Asymmetric Catalysis and Synthesis

Zhihui Shao

Key Laboratory of Medicinal Chemistry for Natural Resource, Ministry of Education, School of Chemical Science and Technology, Yunnan University, Kunming, 650500

zhihui_shao@hotmail.com

Reaction strategies allowing stereodivergence, chemodivergence or regiodivergence represent one of the most cutting-edge developments in synthetic organic chemistry and medicinal chemistry. On the other hand, divergent total synthesis of natural products from a common intermediate has attracted enormous attention in the chemical community. Herein, we summarize our recent advances on divergent asymmetric catalytic reactions and divergent asymmetric catalytic total synthesis of natural products.

Keywords: asymmetric catalysis, stereodivergence, chemodivergence, regiodivergence, total synthesis

References

- [1] Luo, P.; Li, J.; Deng, Y.; Yu, P.; Wang, Y.; Peng, F.; Shao, Z. *Angew. Chem. Int. Ed.* **2024**, *63*, e202412179.
- [2] Ren, J.; Sun, Z.; Zhao, S.; Huang, J.; Wang, Y. *Nat. Commun.* **2024**, *15*, 3783.
- [3] Zha, T.; Rui, J.; Zhang, Z.; Zhang, D.; Yang, Z.; Yu, P.; Wang, Y.; Peng, F.; Shao, Z. *Angew. Chem. Int. Ed.* **2023**, *62*, e202300844.
- [4] Li, L.; Wang, S.; Luo, P.; Wang, R.; Wang, Z.; Li, X.; Deng, Y.; Peng, F.; Shao, Z. *Nat. Commun.* **2021**, *12*, 5667.
- [5] Yang, L.; Wang, Y.; Liu, R.; Luo, Y.; Ng, X. Q.; Yang, B.; Rong, Z.; Lan, Y.; Shao, Z.; Zhao, Y. *Nat. Chem.* **2020**, *12*, 860.
- [6] Dai, J.; Wang, Z.; Deng, Y.; Zhu, L.; Peng, F.; Lan, Y.; Shao, Z. *Nat. Commun.* **2019**, *10*, 5182.
- [7] Li, L.; Luo, P.; Deng, Y.; Shao, Z. *Angew. Chem. Int. Ed.* **2019**, *58*, 4710.
- [8] Dai, J.; Xiong, D.; Yuan, T.; Liu, J.; Chen, T.; Shao, Z. *Angew. Chem. Int. Ed.* **2017**, *56*, 12697.
- [9] Li, Z.-Q.; Zhang, S.-X.; Wu, S.-T.; Shen, X.-L.; Zou, L.-W.; Wang, F.-Q.; Li, X.; Peng, F.-Z.; Zhang, H.-B.; Shao, Z.-H. *Angew. Chem. Int. Ed.* **2013**, *52*, 4117.



Lab webpage:

<http://www.chem.ynu.edu.cn/info/1105/1395.htm>

PROFESSOR
Ke-Yin Ye



College of Chemistry
Fuzhou University

Prof. Dr. Ke-Yin Ye obtained his bachelor's degree from *Xiamen University* (mentors: Prof. Pei-Qiang Huang and Prof. Hong-Kui Zhang) and Ph.D. from *Shanghai Institute of Organic Chemistry* (mentors: Prof. Li-Xin Dai and Prof. Shu-Li You). He then conducted his postdoctoral research with Prof. Gerhard Erker (*Universität Münster*) and Prof. Song Lin (*Cornell University*), respectively. Since June 2019 Ke-Yin started his independent career at Fuzhou University. His research interests include synthetic electrochemistry, organometallics, and enzyme catalysis. He has been awarded *Thieme Chemistry Journals Award* (2020) and *Changjiang Young Scholars Program* (2023).



Functional Small Molecules via Synthetic Electrochemistry

Ke-Yin Ye, * Yuanming Li

College of Chemistry, Fuzhou University, Fuzhou, China

kyye@fzu.edu.cn

Green and sustainable synthetic electrochemistry provides innovative solutions to address the challenges associated with conventional organic synthesis. To this end, one of the most prominent features of synthetic electrochemistry is its unique capability to control reactivity via "dialed-in" specific potential when necessary. We herein demonstrate the unique capability of synthetic electrochemistry in the facile synthesis of diverse functional small molecules, including nitrogen-sulfurs of various oxidation states and functional organic materials. Therefore, previously challenging transformations with conventional chemical oxidations are now readily accessible.

Keywords: synthetic electrochemistry, oxidation, Scholl reaction, functional organic materials

References

- [1] Shen, T.; Li, Y.-L.; Ye, K.-Y.;* Lambert*, T. H, *Nature* **2023**, 614, 275-280.
- [2] Jiang, Y.-M.; Lin, Y.-Y.; Zhu, L.; Yu, Y.; Li, Y.; Lin, Y.;* Ye, K.-Y.* *CCS Chem* **2024**, 6, 2021-2030.
- [3] Shi, Z.; Li, Y.; Li, N.; Wang, W.-Z.; Lu, H.-H.; Yan, H.; Yuan, F.; Zhu, J.;* Ye, K.-Y.* *Angew. Chem. Int. Ed.* **2022**, 61, e202206058.
- [4] Yu, Y.; Zhu, X.-B.; Yuan Y.; Ye, K.-Y.* *Chem. Sci.* **2022**, 13, 13851-13856.
- [5] Shi, Z.; Dong, S.; Liu, T.; Wang, W.-Z.; Li, N.; Yuan, Y.; Zhu, J.;* Ye, K.-Y.* *Chem. Sci.* **2024**, 15, 2827-2832.



Lab webpage:

https://www.x-mol.com/groups/Ye_Keyin?lang=en

PROFESSOR

Thierry Ollevier



Département de Chimie, Université Laval, Canada
Editor-in-Chief, *SynOpen*

Thierry Ollevier was born in Brussels and obtained his B.Sc. (1991) and Ph.D. (1997) at the Université of Namur (Belgium), and was research associate at the Université catholique de Louvain (Belgium), under I. E. Markó (1997), NATO postdoctorate fellow at Stanford University under B. M. Trost (1998–2000), then postdoctorate fellow at the Université de Montréal under A. B. Charette (2000–2001). After an Assistant Professor appointment (2001) at Université Laval (Québec, Canada), he became Associate (2006) and is currently Full Professor. Current research in his group aims at designing novel catalysts, developing catalytic reactions and applying these methods to chemical synthesis. He is active in the areas of iron catalysis, ligand design, asymmetric catalysis, fluorine chemistry, diazo and diazirine chemistry, flow chemistry, and bismuth chemistry. He has published more than 85 papers and 35 encyclopedia articles and book chapters. He has served as an Associate Editor of *RSC Advances* from 2015 to 2022 and was admitted as a Fellow of the Royal Society of Chemistry (2016). After 5 years served as Advisory Board member of *SynOpen*, he has been appointed as Editor-in-Chief of *SynOpen* in 2023.



Design and Applications of Chiral Iron Complexes for Asymmetric Catalysis

Thierry Ollevier

Department of Chemistry, Université Laval, Québec, Canada
thierry.ollevier@chm.ulaval.ca

Various iron-derived Lewis acids have been developed as green catalysts in asymmetric synthesis. Chiral iron complexes have been employed in selected asymmetric C–C, C–N, and C–S bond-forming reactions, such as the Mukaiyama aldol, epoxide opening, thia-Michael and Diels–Alder reactions.^[1–6] As part of our ongoing interest in ligand design, we report the fine-tuning of alternate designer ligands toward higher chiral inductions. Iron coordination chemistry will be discussed in the context of the enantiocontrol of selected reactions. We developed an efficient chiral C₂-symmetric 2,2'-bipydiol ligand possessing an adamantyl or a CF₃ group in the α,α'-positions. A highly enantioselective method for the catalytic addition of thiols to α,β-unsaturated oxazolidinones was developed using Fe^{II} salts with the (S,S)-2,2'-bipyridine-α,α'-tBu-diols ligand (Bolm's ligand, up to 86% ee)^[5] and the analogue ligand possessing 3,3'-dimethyl substituents (up to 90% ee).^[2] The Fe^{III}-catalyzed asymmetric Diels–Alder reaction of various dienes with α,β-unsaturated oxazolidinones was performed using Bolm's ligand (up to 98% ee)^[3] and the adamantyl-variant (S,S)-2,2'-bipyridine-α,α'-1-Ad-diols (up to > 99.5% ee).^[1] Another new 2,2'-bipydiol ligand possessing CF₃ groups in the α,α'-positions was prepared and used in the asymmetric addition of Et₂Zn to aldehydes (up to 95% ee).^[4] Overall, the following asymmetric reactions will be presented: Fe^{II}-catalyzed thia-Michael (up to 90% ee),^[5] Fe^{II}-catalyzed Mukaiyama aldol (up to 98% ee),^[1,2] Fe^{III}-catalyzed Diels–Alder (up to > 99.5% ee),^[1,3] and Zn^{II}-mediated Et₂Zn addition to aldehydes (up to 95% ee).^[4]

Keywords: asymmetric catalysis, chiral ligand, enantioselectivity, iron catalysis

References

1. Lauzon, S.; Schouwey, L.; Ollevier, T. *Org. Lett.* **2022**, *24*, 1116.
2. Lauzon, S.; Caron, L.; Ollevier, T. *Org. Chem. Front.* **2021**, *8*, 2242.
3. Li, M.; Carreras, V.; Jalba, A.; Ollevier, T. *Org. Lett.* **2018**, *20*, 995.
4. (a) Lauzon, S.; Ollevier, T. *Chem. Commun.* **2021**, *57*, 11025; (b) Lauzon, S.; Ollevier, T. *Chem. Sci.* **2022**, *13*, 10985.
5. Lauzon, S.; Keipour, H.; Gandon, V.; Ollevier, T. *Org. Lett.* **2017**, *19*, 6324.
6. Bouzid, S.; Marcoux, A.; Ollevier, T. *Chem. Eur. J.* **2024**, *30*, doi: 10.1002/chem.202402449.



Lab webpage:

<http://www2.chm.ulaval.ca/tollevier/>

PROFESSOR
Xiu-Ling Cui



School of Medicine
Zhengzhou University / Huaqiao University

Xiuling Cui is a professor at Medical School of Huaqiao University and College of Chemistry, Zhengzhou University. She studied chemistry at Zhengzhou University and received her PhD in 1999 under the guidance of Acad. Prof. Yangjie Wu. Then, she started her research at the Chemistry Department of Zhengzhou University as an associate professor. She was promoted as a full professor in 2008, Minjiang scholar of Fujian Province in 2011 and distinguished professor of Henan Province in 2015. She worked as an FCT post-doctoral fellow from 2000 to 2006 in the group of Prof. Rita Delgado in ITQB, Universidade Nova Lisboa, Portugal. Her research interests focus on the synthetic methodology and marine drugs.



De novo construction of chiral N-heterocycle *via* annulation-rearrangement strategy

Yong Wang¹ and Xiuling Cui^{1,2}

1. College of Chemistry, Zhengzhou University, Zhengzhou, P. R. China

2. Engineering Research Centre of Molecular Medicine of Ministry of Education, Key Laboratory of Fujian Molecular Medicine, Key Laboratory of Precision Medicine and Molecular Diagnosis of Fujian Universities, Key Laboratory of Xiamen Marine and Gene Drugs, School of Biomedical Sciences, Huaqiao University, Xiamen 361021, P. R. China.

wychem@zzu.edu.cn; cuixl@hqu.edu.cn

Chiral *N*-heterocycles play key roles in naturally occurring products, pharmaceuticals and synthetic building blocks. Intensive studies have been reported on the enantioselective synthesis of chiral *N*-heterocycles, especially through enantioselective *N*-heterocycles modification. For a considerable number of chiral *N*-heterocycles, the *de novo* enantioselective construction exists big challenge. We utilized the sequent [3+2] annulation-enantioselective rearrangement strategy, for instance, Heyns rearrangement and pinacol rearrangement, to realize a series of *de novo* enantioenriched *N*-heterocycles construction.

Keywords: *N*-heterocycle, [3+2] annulation, rearrangement, chiral phosphoric acid

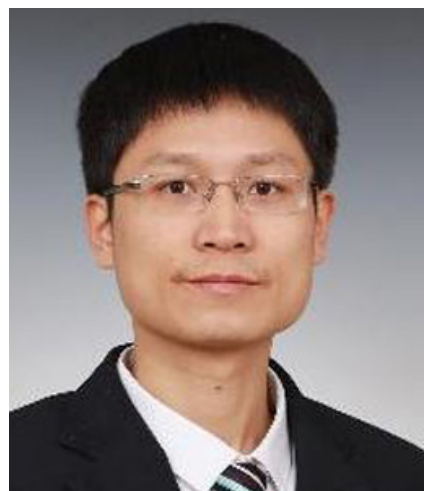
References

- [1] Wang Yong, Li Yanan, Chen Haohua,* Lan Yu, Pi Chao, Wu Yangjie, Cui Xiuling,* *Nat. Commun.*, **2024**,15, 6183.
- [2] Wang Yong, Li Jingyuan, Li Yanan, Pi Chao, Wu Yangjie, Cui Xiuling,* *Org. Chem. Front.*, **2023**,10, 5631.
- [2] Wang Yong, Pi Chao, Wu Yangjie, Cui Xiuling,* *Chem. Eur. J.*, **2024**, e202402974.



Lab webpage:
<https://faculty.hqu.edu.cn/CXL/en/index.htm>

PROFESSOR
Wei-Wei Zi



State Key Laboratory of Elemento-organic Chemistry
College of Chemistry, Nankai University

Prof. Weiwei Zi earned his bachelor's degree from Lanzhou University in 2006. He then pursued his Ph.D. at the Shanghai Institute of Organic Chemistry, graduating in 2011 under the supervision of Prof. Ma Dawei. Following that, from 2012 to 2016, he conducted postdoctoral research at the University of California, Berkeley under the guidance of Prof. F. Dean Toste. In March 2016, he commenced independent work at the State Key Laboratory of Elemento-organic Chemistry of Nankai University.



Palladium Involved Synergistic Catalysis for Stereodivergent C(sp³)-C(sp³) Couplings

Weiwei Zi

State Key Laboratory of Elemento-organic Chemistry, College of Chemistry, Nankai University, Tianjin, China
zi@nankai.edu.cn

Structures with vicinal stereocenters are commonly found in natural products, bioactive molecules, and potential drugs. Constructing a vicinal stereocenter through C(sp³)-C(sp³) bond formation is a significant research area in asymmetric catalysis. Our group's primary goal is to develop a Pd-involved synergistic catalysis platform for stereodivergent Csp³-Csp³ coupling reactions. Incorporating a second nucleophile-activation mode into Pd-catalyzed coupling reactions allows us concise control over the stereochemistry. This strategy enables us to pursue a stereodivergent approach to C(sp³)-C(sp³) couplings of dienes (including 1,3-dienes, alkoxyallenes, and allenamides) with various carbon nucleophiles, such as aldimine esters, aldehydes, oxindoles, and pentafluorophenyl esters. These reactions provide rapid access to a range of chiral scaffolds bearing vicinal stereocenters in a stereodivergent fashion.

Keywords: synergistic catalysis, C(sp³)-C(sp³) coupling, stereodivergent, vicinal stereocenters, palladium

References

- [1] H. Wang, Q. Zhang, W. Zi*, *Acc. Chem. Res.* **2024**, 57, 468-488.
- [2] H. Wang, R. Zhang, W. Zi*, *Angew. Chem. Int. Ed.* **2024**, 63, e202402843
- [3] J. Han, R. Liu, Z. Lin, W. Zi*, *Angew. Chem. Int. Ed.* **2022**, 61, e202215714.
- [4] Q. Zhang, M. Zhu, W. Zi*, *Chem* **2022**, 8, 2784-2796.
- [5] M. Zhu, P. Wang, Q. Zhang, W. Tang, * W. Zi*, *Angew. Chem. Int. Ed.* **2022**, 61, e202207621.
- [6] H. Wang, R. Zhang, Q. Zhang, W. Zi*, *J. Am. Chem. Soc.* **2021**, 143, 10948-10962.
- [7] Minghui Zhu, Qinglong Zhang, and Weiwei Zi*, *Angew. Chem. Int. Ed.* **2021**, 60, 6545-6552.
- [8] Q. Zhang, H. Yu. L. Shen, T. Tang, D. Dong, W. Zi*, *J. Am. Chem. Soc.* **2019**, 141, 14554-14559.



Lab webpage:
www.x-mol.com/groups/ziweiwei

PROFESSOR Debabrata Maiti



Department of Chemistry, Indian Institute of Technology Bombay
Editor-in-Chief, Synlett

Prof. Debabrata Maiti received his PhD from Johns Hopkins University in 2008 under the supervision of Prof. Kenneth D. Karlin. After postdoctoral studies at MIT with Prof. Stephen L. Buchwald, he joined the Department of Chemistry at IIT Bombay in 2011. His research interests are focused on the development of new and sustainable synthetic and catalytic methodologies. Currently he is *Editor-in-Chief, Synlett*.

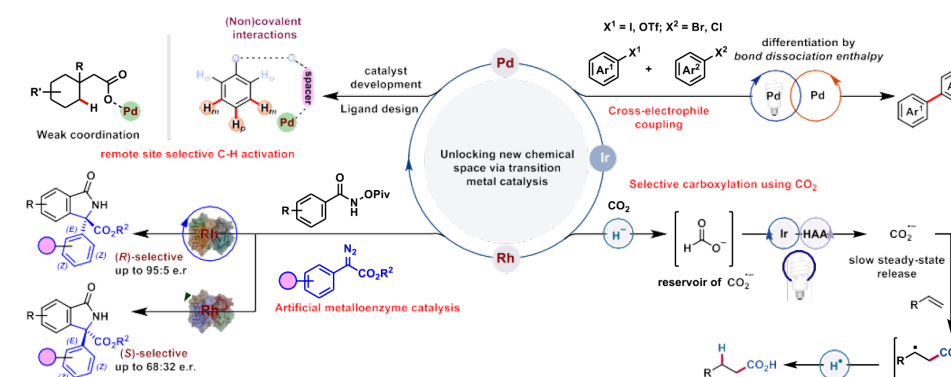
Unlocking new chemical space via selective catalysis

Debabrata Maiti

Department of Chemistry, Indian Institute of Technology Bombay

dmaiti@iitb.ac.in

The limitations of cross-coupling such as the availability of prefunctionalized coupling partners, instability, and synthesis expense remain, posing significant barriers to unlocking new chemical space for molecular complexity. To solve these underlying problems of cross-coupling we are mainly focused on the development of techniques for direct C–H functionalization and cross-electrophile coupling. Selectively targeting a remote C–H bond in a molecule remains more challenging due to the inaccessibility of these sites in formation of energetically favorable organometallic pre-transition states. We believe that the direct release of the reactive metal catalyst in close proximity to the targeted remote C–H bond could solve this problem. We devised covalently attached template-directed methods that require precise spatial positioning of the directing group in order to selectively activate remote C–H bonds. We recently demonstrated that various non-covalent interactions are also successful in recognizing the perfect orientation of catalyst and the substrate to achieve selective C–H bond activation. In this vein, we have developed a method for the activation of methylene C–H bond in presence of methyl C–H bonds to form unsaturated bicyclic lactones utilizing the weak coordinating nature carboxylic acid towards palladium. Cross-electrophile coupling (XEC) approach would be a powerful tool for the construction of (hetero)biaryl moiety because of the widespread availability and stability of (hetero)aryl electrophiles. We have demonstrated a ligand controlled visible light driven monometallic cross-electrophile coupling platform for the synthesis of unsymmetrical (hetero)biaryls directly from (hetero)aryl halides and pseudohalides. In addition, our lab is pursuing the development of a paradigm in which small molecules such CO₂, SO₂ etc. can be converted into a wide range of chemicals and materials using renewable visible light photocatalysis.



References

1. Dutta, U.; Maiti, S.; Bhattacharya, T.; Maiti, D. *Science*, 2021, 372, 701.
2. Goswami, N.; Sinha, S. K.; Mondal, P.; Adhya, S.; Datta, A.; Maiti, D. *Chem*, 2023, 9, 989.
3. Saha, A.; Guin, S.; Ali, W.; Bhattacharya, T.; Sasmal, S.; Goswami, N.; Prakash, G.; Sinha, S. K.; Chandrashekar, H. B.; Panda, S.; Anjana, S. S.; Maiti, D. *J. Am. Chem. Soc.* 2022, 144, 1929.
4. Das, J.; Ali, W.; Ghosh, A.; Pal, T.; Mandal, A.; Teja, C.; Dutta, S.; Pothikumar, R.; Ge, H.; Zhang, X.; Maiti, D. *Nat. Chem.* 2023, 15, 1626.
5. Maiti, S.; Ghosh, P.; Raja, D. K.; Ghosh, S.; Chatterjee, S.; Sankar, V.; Roy, S.; Lahiri, G. K.; Maiti, D. *Nat. Catal.* 2024
6. Mukherjee, P.; Sairaman, A.; Deka, H. J.; Jain, S.; Mishra, S. K.; Roy, S.; Bhaumik, P.; Maiti, D. *Nat. Synth.* 2024



Lab webpage:
<https://www.dmaiti.com/>

PROFESSOR

Pei-Qiang Huang



School of Chemistry and Chemical Engineering
Xiamen University

Pei-Qiang Huang is a Professor at the School of Chemistry and Chemical Engineering, Xiamen University. He received his Ph.D. degree from the University of Paris-Sud, France, in 1987, and was awarded the National Outstanding Young Scholar fund in 1996. He is a fellow of the Royal Society of Chemistry and the Chinese Chemical Society. He is currently an associate editor of *Org. Chem. Front.* He has also served on the editorial boards of *Eur. J. Org. Chem.*, *Curr. Org. Chem.*, *Sci. China: Chem.*, *Chin. J. Chem.*, *Chin. Chem. Lett.* and *Acta Chimica Sinica*, etc. He has published more than 290 papers. He led the editing of several books including *Organic Named Reactions, Reagents and Rules* (Second Edition, 2019), *Efficiency in Natural Product Total Synthesis* (Wiley, 2018), *Organic Named Reactions, Reagents and Rules* (2008), *Organic Synthesis* (2004) and contributed chapters to 6 books as well. He is mainly engaged in the research of total synthesis of natural products and direct conversion of amides in synthetic methodology.



Lab webpage:

<http://huangpeiqiang.xmu.edu.cn/en/Home.htm>

Efficiency in Organic Synthesis and Total Synthesis of Natural Products

Pei-Qiang Huang

Department of Chemistry, Fujian Provincial Key Laboratory of Chemical Biology, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, P. R. China

pqhuang@xmu.edu.cn

The synthetic efficiency and selectivity are key issues in today's organic synthesis and natural product total synthesis.^[1] To address the problem of efficiency, the concepts of step economy, redox economy, and protecting group-free syntheses have been introduced, in addition to the classical biomimetic synthesis. Some representative results of our endeavor in this context will be presented, which include the four-step enantioselective total synthesis of (-)-chaetominine,^[2] the first catalytic asymmetric total synthesis of (-)-haliclونin A,^[3] the first enantioselective total synthesis of (+)-stemofoline and three congeners,^[4] and 2 to 3-step catalytic asymmetric total syntheses of piperidine, pyrrolidine and indolizidine alkaloids.^[5] Many of the above mentioned total syntheses relied on the methods of chemoselective direct transformation of amides, a powerful methodology developed in our laboratory.

Keywords: Synthetic methodologies, synthetic efficiency, natural products, asymmetric total synthesis, chemoselectivity

References

- [1] *Efficiency in Natural Product Total Synthesis*; Huang, P.-Q.; Yao, Z.-J.; Hsung, R. P. eds. John Wiley & Sons, Inc.: Hoboken, USA, 2018.
- [2] Geng, H.; Huang, P.-Q. *Chem. Rec.* **2019**, *19*, 523.
- [3] Guo, L.-D.; Huang, X.-Z.; Luo, S.-P.; Cao, W.-S.; Ruan, Y.-P.; Ye, J.-L.; Huang, P.-Q. *Angew. Chem. Int. Ed.* **2016**, *55*, 4064.
- [4] Huang, X.-Z.; Gao, L.-H.; Huang, P.-Q. Enantioselective total syntheses of (+)-stemofoline and three congeners based on a biogenetic hypothesis. *Nat. Commun.* **2020**, *11*: 5314.
- [5] Xu, F.-F.; Chen, J.-Q.; Shao, D.-Y.; Huang, P.-Q. *Nat. Commun.* **2023**, *14*, 6251.

Publish with us!

Your Trusted Publisher in the Field of Chemical Synthesis

The chemical sciences portfolio consists of 11 journals, more details can be read on our website. In addition, Thieme also publishes databases such as *Science of Synthesis*, *Roempp* and *Pharmaceutical Substances*.



Select Crowd Review: Fast, Interactive, Modern

Select Crowd Review (SCR) speeds up the time from submission to first decision.

A selection of up to 100 experts, who are exclusive members of the crowd, can anonymously comment on a submitted manuscript within 72 hours via a secure web interface. Thieme has had great experience with SCR for more than 6 years.



Benefits at a glance:

- Fast, interactive, and secure review process
- Informative comments and different perspectives by experts
- Same or even better quality than with classical peer review



SCAN ME!

Thieme Chemistry Prizes and Awards



- Thieme–IUPAC Prize (€5,000)
- Thieme Chemistry Journals Award
- Dr. Margaret Faul Women in Chemistry Award sponsored by SoS (€5,000)
- SYNTHESIS/SYNLETT Best Paper Awards (€3,000)
- SynOpen/Organic Materials Best Paper Awards (€1,000)
- Thieme Lecture in Organic and Bioorganic Chemistry
- Thieme Poster Prizes

Learn More: www.thieme-chemistry.com/awards



roadshow.thiemechina.com/index.php
www.thieme-chemistry.com

