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Organic Chemistry Frontiers Outstanding Paper Awards 2014–2023

In celebration of the 10th anniversary of *Organic Chemistry Frontiers*, we are pleased to honour some of the exceptional work published in the journal, as well as the authors behind those articles, with the Outstanding Paper Awards 2014–2023.

Over the past decade, *Organic Chemistry Frontiers* has grown together with our authors, serving as a platform to showcase groundbreaking and cutting-edge research in the field. Following careful consideration of various factors, such as article downloads, Altmetric scores, citations, and reviewer feedback, the journal's Editorial and Advisory Board members further selected ten outstanding papers based on their science excellence and potential future impact.

Choosing the winners was a challenge, given the great number of high-calibre publications published in the journal. We are deeply grateful to all our authors for their trust and support. It has been a privilege to publish your important work and contribute to the growth of your academic careers.

Finally, please join us in congratulating the winners of our Outstanding Paper Awards. We hope that you find their work as inspiring and enlightening as we have. All articles will be free to access for a limited period of time.

Shengming Ma
Editor-in-Chief, *Organic Chemistry Frontiers*

Chiral *N*,*N*′-dioxide ligands: synthesis, coordination chemistry and asymmetric catalysis

Xiaohua Liu, Lili Lin and Xiaoming Feng*

Org. Chem. Front., 2014, **1**, 298–302

https://doi.org/10.1039/C3QO00059A

Chiral ligands and catalysts are the core of asymmetric catalytic synthesis. The conformationally flexible chiral *N*,*N*′-dioxide ligands, known as Feng ligands, have been recognized as a novel type of privileged chiral ligands, breaking through the requirement of a rigid skeleton with traditional privileged ligands. This paper introduces their unique design, synthesis, structure, and bonding in coordination complexes, as well as their applications in asymmetric catalysis.

Xiaohua Liu received her BS (2000) and MS (2003) from Hubei Normal University and Sichuan University, respectively. After the completion of her doctoral study under the supervision of Prof. Xiaoming Feng at Sichuan University, she joined the faculty of Prof. Feng's group in 2006, and was appointed as an associate professor. In 2010, she was promoted to full professor. Her current research interests include the design and synthesis of chiral organocatalysts and ligands, asymmetric catalysis, and chiral drug synthesis.

Lili Lin received a bachelor's degree in chemistry from Sichuan University in 2003. After the completion of her doctoral study under the supervision of Prof. Xiaoming Feng at Sichuan University, she became a lecturer at the same institution in 2008 and was promoted to full professor in 2016. She focuses on the development of bispidine-based chiral catalysts, and their applications in catalytic asymmetric reactions.

Xiaoming Feng received his B.S. (1985) and M.S. degrees (1988) from Lanzhou University. In 1996, he received his Ph. D. degree from the Institute of Chemistry, Chinese Academy of Sciences (CAS). He worked at the Chengdu Institute of Organic Chemistry, CAS (1996–2000) and was appointed as a professor in 1997. He did postdoctoral research at Colorado State University (1998–1999). In 2000, he joined Sichuan University as a professor. In 2013, he was selected as a member of the Chinese Academy of Sciences. His research interests include the design of chiral catalysts, the development of new synthetic methods, and the synthesis of bioactive compounds.

The Mitsunobu reaction in the 21st century

S. Fletcher

Org. Chem. Front., 2015, **2**, 739–752

https://doi.org/10.1039/C5QO00016E

The Mitsunobu reaction was first reported over half a century ago. This review focuses on the more recent advances and applications of Mitsunobu chemistry, particularly from the 1990s to the year of publication. In addition to a discussion of newer reagents that facilitate purification, we describe more contemporary applications of this chemistry, especially as applied to the synthesis of pharmaceuticals and their precursors.

Steven Fletcher is presently an associate professor of pharmaceutical sciences at the University of Maryland School of Pharmacy (UMSOP) in Baltimore, Maryland, USA. After graduating with a BA and a Master of Natural Sciences (specializing in chemistry) from the University of Cambridge, UK, he then completed a PhD in medicinal chemistry under the supervision of Prof. Andrew D. Miller at Imperial College London, UK. Subsequently, he then completed two postdoctoral research positions at Yale University in New Haven, Connecticut, USA (supervisor: Prof. Andrew D. Hamilton) and at the University of Toronto, Mississauga, Canada (supervisor: Prof. Patrick T. Gunning) where he continued his training in medicinal chemistry, with particular emphasis on targeting protein–protein interactions (PPIs). In his independent position at UMSOP, Dr Fletcher's research focus has largely been directed towards disrupting dysregulated, oncogenic PPIs within the BCL-2 family of proteins that regulate apoptosis. In addition, his group has investigated various pharmacological strategies to inhibit, both directly and indirectly, the N- and c-Myc oncoproteins. More recently, Fletcher's laboratory has begun to develop small-molecule-based targeted protein degraders that operate through a hitherto unreported mechanism for potential applications in cancer, as well as other disease states. In parallel to medicinal chemistry projects, his group has engaged in research on the Mitsunobu reaction. In all, Dr Fletcher has published over 100 papers in high-impact journals and holds over 20 patents, of which 11 are licensed. He is also the editor-in-chief of *Drug Development Research* (Wiley) and is an associate editor of *RSC Advances*.

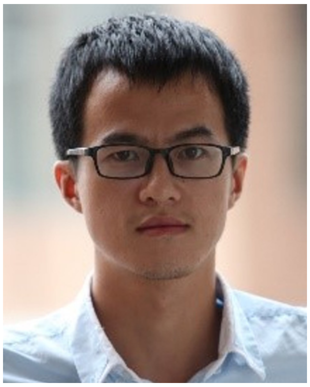
Transition metal-catalyzed C–H bond functionalizations by the use of diverse directing groups

Zhengkai Chen, Binjie Wang, Jitan Zhang, Wenlong Yu, Zhanxiang Liu* and Yuhong Zhang*

Org. Chem. Front., 2015, **2**, 1107–1295

https://doi.org/10.1039/C5QO00004A

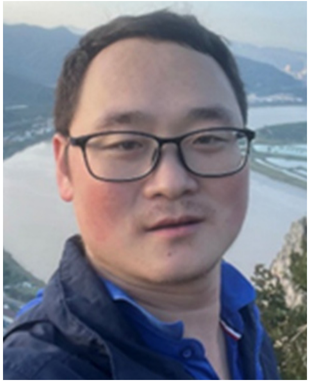
This review summarizes the progress of transition metal-catalyzed C–H bond functionalizations using diverse directing groups for the construction of C–C and C–hetero bonds from 2011 to 2014. The synthetic applications and mechanistic investigations of these transformations are also discussed. The review is organized on the basis of the type of directing group and the type of bond being formed or the catalyst.



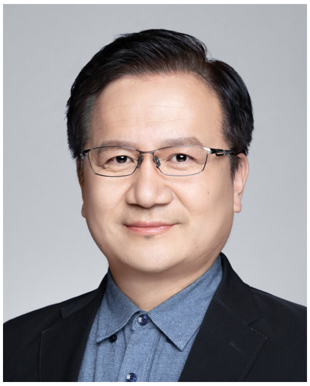
Zhengkai Chen was born in 1988 in Henan, China. He obtained his B.S. degree from Zhengzhou University in 2010 and received a Ph.D. degree at Zhejiang University under the supervision of Prof. Yuhong Zhang in 2015. Then he joined the School of Chemistry and Chemical Engineering, Zhejiang Sci-Tech University and was promoted to associate professor in 2019. His current research interests focus on the development of efficient methods for the synthesis of fluoroalkyl-functionalized heterocycles from diverse fluorine-containing synthons. He has authored >100 publications in international journals.

Binjie Wang was born in 1988 in Zhejiang, China. He obtained his bachelor's degree from Zhejiang University in 2010. In 2015, he received his Ph.D. degree from Zhejiang University under the supervision of Professor Yuhong Zhang. In 2018, he joined Zhejiang Police College and was promoted to associate professor in 2023. His current research focuses on neurotoxicity studies of new psychoactive substances using zebrafish as a model organism.

Jitan Zhang was born in Anhui, China. He received his B.S. degree from Anhui Normal University in 2009. In 2016, he obtained his doctoral degree in organic chemistry from the laboratory of Prof. Yuhong Zhang at Zhejiang University, where he worked on transition metal-catalyzed C–H bond functionalization. After one year of studying asymmetric catalysis and synthesis at Sun Yat-sen University, he began his independent research as an associate professor at Anhui Normal University and is currently focusing on the development of novel synthetic methods for asymmetric synthesis and sustainable chemistry.



Wenlong Yu was born in 1990 in Shaanxi, China. He obtained his B.S. degree from Heilongjiang University in 2012 and received a Ph.D. degree at Zhejiang University under the supervision of Prof. Yuhong Zhang in 2017. Then he joined Zhejiang Huahai Pharmaceutical Co., Ltd and was promoted to senior researcher in 2024. His current job focuses on the safe, environmentally benign, and economical synthesis and manufacture of active pharmaceutical ingredients on an industrial scale.



Zhanxiang Liu graduated and received his B.S. degree in 1996 and his M.S. degree from Northwest Normal University in 1999. He was awarded a Ph. D. degree from Zhejiang University under the guidance of Prof. Xian Huang in 2002. After working as a postdoctoral fellow with Prof. Daoben Zhu at the Institute of Chemistry, Chinese Academy of Sciences (ICCAS) for 2 years, he became an associate professor at Zhejiang University in 2004. From 2009 to 2011, he worked as a visiting scientist at Texas A&M University. His current research interests include the synthesis of functional organic molecules and green chemistry.

Yuhong Zhang is a doctoral supervisor at the Department of Chemistry, Zhejiang University. She received her bachelor's and master's degrees in the Department of Chemistry from Lanzhou University, and her doctoral degree in the Department of Chemistry from Zhejiang University in 1999. After spending two years as a postdoctoral fellow in the laboratory of Prof. Armin Reller at Augsburg University in Germany, she returned to Zhejiang University in 2001 and achieved the rank of a full professor in 2003. Her research is focused on transition-metal catalysis and new methods for heterocycle synthesis. She has achieved original research results in research fields such as metal-catalyzed coupling reactions and C–H bond activation reactions. She has presided over and completed four projects funded by the National Natural Science Foundation of China, one Outstanding Team Project of Zhejiang Province, one Major Special Project of Zhejiang Province, and two projects funded by the Natural Science Foundation of Zhejiang Province.

She has published more than 100 academic papers and the *h*-index of her personal related research papers has reached 33. Six of her research papers have been cited more than 100 times each, and the total number of citations of her papers has reached nearly 3000.

She won the Thieme Chemistry Journals Award in 2010.

A concise total synthesis of sespenine, a structurally unusual indole terpenoid from *Streptomyces*

Yu Sun, Zhanchao Meng, Pengxi Chen, Deliang Zhang, Martin Baunach, Christian Hertweck and Ang Li*

Org. Chem. Front., 2016, **3**, 368–374

https://doi.org/10.1039/C5QO00416K

The synthesis of sespenine features a substrate-alerting biomimetic strategy. Rather than faithfully mimicking the postulated biogenesis, we utilized an indosespene analogue bearing a methoxycarbonyl substituent as a key intermediate. An aza-Prins/Friedel–Crafts/retro-Friedel–Crafts cascade was devised and developed to construct the pentacyclic scaffold of sespenine. This work highlights the power of a generalized biomimetic approach in natural product synthesis.

Yu Sun was born in Shandong, China, in 1988. He received his B.Sc. from Fudan University (China) and his Ph.D. from the Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, in 2016 under the supervision of Prof. Ang Li. He joined Prof. Amir Hoveyda's group at Boston College as a postdoctoral fellow in 2017. In 2020, he began his independent career as an associate professor in the School of Pharmacy at Fudan University. His research focuses on the total synthesis of bioactive natural products.

Ang Li was born in Jilin, China, in 1982. He received his B.Sc. from Peking University (China) in 2004 and earned his Ph.D. from The Scripps Research Institute in 2009 under the mentorship of Prof. K. C. Nicolaou. After conducting postdoctoral research with Prof. Nicolaou at the Institute of Chemical and Engineering Sciences (Singapore) in 2010, he joined the faculty at the Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, in September of the same year. His research focuses on the total synthesis and mechanistic characterization of natural products. He was honored with the Tetrahedron Young Investigator Award in Organic Synthesis in 2017 and the Thieme–IUPAC Prize in Synthetic Organic Chemistry in 2020.

Electrochemical Minisci-type trifluoromethylation of electron-deficient heterocycles mediated by bromide ions

Gui-Yuan Dou, Yang-Ye Jiang, Kun Xu and Cheng-Chu Zeng*

Org. Chem. Front., 2019, **6**, 2392–2397

https://doi.org/10.1039/C9QO00552H

An electrochemical methodology for the Minisci-type trifluoromethylation of electron-deficient heterocycles mediated by cheap and easily available bromide ions has been developed. By virtue of the *in situ* generation of the sulfonyl hypobromite intermediate, the CF_3 radical can be regulated and controlled at a low concentration, thereby improving the reaction efficiency over direct electrolysis. Also, the indirect electrochemical process is performed in a beaker-type undivided cell under galvanostatic conditions, without using external expensive supporting electrolytes. The protocol provides an alternative electrochemical trifluoromethylation methodology for the late-stage functionalization of pharmaceutical molecules with high industrial potential.

Guiyuan Dou obtained her bachelor's degree from Shaanxi University of Science and Technology in 2017 and her master's degree in 2020 from the Beijing University of Technology under the supervision of Prof. Chengchu Zeng. Currently, she is an editor in a publishing company.

Yangye Jiang obtained his bachelor's degree from Beijing University of Technology (BJUT) in 2014 and his master's degree from the same university in 2017. He was awarded his Ph.D. degree at the same university in 2021, supervised by Prof. Chengchu Zeng. From 2021–2022, Dr Jiang worked with Prof. Pengfei Hu as a postdoctoral researcher at Westlake University. Then in 2022, Dr Jiang joined PharmaBlock Pharmaceuticals (Zhejiang) Co., Ltd. And now he is the head of the continuous process conversion department, focusing on flow process development and conversion through advancing innovation in chemistry and low-carbon manufacturing.

Chengchu Zeng earned his master's degree in organic chemistry in 1998 from Central China Normal University (CCNU) and his Ph.D. degree from the Institute of Chemistry, Chinese Academy of Science (ICCAS) in 2001. From 2011–2013, Dr Zeng worked with Prof. James Y. Becker as a postdoctoral researcher in the Department of Chemistry, Ben-Gurion University in Israel. During that period, he had the opportunity to learn organic electrochemistry. Dr Zeng began his independent career at Beijing University of Technology (BJUT) in August 2003 and was promoted to associate professor in November 2003 and full professor in 2010. He also joined Prof. R. D. Little's group as a visiting scholar from April 2011 through August 2011. Dr Zeng's research interests focus on the interface of organic chemistry and electrochemistry, and in particular on the electrosynthesis of fine chemicals.

Hole-mediated photoredox catalysis: tris(*p*-substituted)biarylaminium radical cations as tunable, precomplexing and potent photooxidants

Shangze Wu, Jonas Žurauskas, Michał Domański, Patrick S. Hitzfeld, Valeria Butera, Daniel J. Scott, Julia Rehbein, Ajeet Kumar, Erling Thyrhaug, Jürgen Hauer and Joshua P. Barham*

Org. Chem. Front., 2021, **8**, 1132–1142
https://doi.org/10.1039/D0QO01609H

Photocatalytic and electrochemical redox chemistries experience fundamental limitations: (i) the inabilities to harness the full photon redox energy and to engage molecules outside the solvent redox window, as well as (ii) thermodynamic redox potential-guided selectivity. Photoelectrochemistry circumvents such limitations for high-power redox processes. Triarylamines are introduced as tunable, electroactivated photocatalysts for superoxidations. Our discovery of dispersion precomplexation rationalizes (i) the photochemistry of picosecond-lived photoexcited radical ion catalysts and (ii) anti-Kasha photochemistry harnessing the full photon redox energy. Dispersion precomplexation presents a new selectivity handle, overturning redox potential-guided selectivity in photocatalysis.

This manuscript was the first detailed mechanistic investigation of the preassembly of radical cation photocatalysts, and its discovery of the preassembly mechanism set the stage for a number of subsequent reports on radical ion photocatalysis: *Angew. Chem., Int. Ed.*, 2021, **60**, 20817–20825; *ACS Catal.*, 2022, **12**, 6047; *Phys. Chem. Chem. Phys.*, 2022, **24**, 568; *J. Chem. Phys.*, 2023, **158**, 144201; *Nat. Commun.*, 2024, **15**, 4738; *ACS Catal.*, 2024, **14**, 907; *Angew. Chem., Int. Ed.*, 2023, **62**, e202307550.

Shangze Wu was born in Fushun, P.R. China. He received his Ph.D. in 2017 under the supervision of Prof. Shengming Ma at Zhejiang University, China, where his doctoral studies focused on investigating allene chemistry and C–H bond activation. From 2017–2020, he worked as a postdoctoral researcher exploring titanium-mediated epoxide chemistry under the supervision of Prof. Andreas Gansäuer at the University of Bonn, Germany. From 2020–2022, he undertook postdoctoral research on synthetic photoelectrochemistry in the group of Dr Joshua P. Barham at the University of Regensburg. From 2022–2023, he pursued postdoctoral research on electrochemical fluorination reactions with Prof. Tanja Gulder at the University of Leipzig, and at present he works on photochemical C–H activation under the guidance of Prof. Manuel van Gemmeren at the University of Kiel.

Joshua P. Barham was born in Watford, U.K. He received his industry-based Ph. D. in 2017 under the supervision of Prof. John A. Murphy and Dr Matthew P. John at the University of Strathclyde and GSK, U.K. His postdoctoral studies with Prof. Yasuo Norikane and Prof. Yoshitaka Hamashima at AIST and the University of Shizuoka, Japan, specialized in flow chemistry and photoredox catalysis. His independent career started in 2019 at the University of Regensburg in Germany, supported by a Sofja Kovalevskaja Award, where his group investigates the use of photo-, electro-, photoelectro- and continuous flow chemistry in organic synthesis. In 2022, he was awarded an ERC Starting Grant presently funded *via* the UKRI/EPSRC funding guarantee. In 2024, he was appointed reader at the University of Strathclyde, U.K. and adjunct professor at the University of Regensburg, Germany.

One-step synthesis of polycyclic thianthrenes from unfunctionalized aromatics by thia-APEX reactions

Kou P. Kawahara, Hideto Ito* and Kenichiro Itami*

Org. Chem. Front., 2023, **10**, 1880–1889

https://doi.org/10.1039/D2QO02058K

Since its conceptualization in 2015, annulative π-extension (APEX) has been a brand-new and powerful reaction concept for the synthesis of nanographenes and polycyclic aromatic compounds. The APEX reaction allows the rapid synthesis of polycyclic arenes in a manner similar to the annulative C–H functionalization of unfunctionalized polycyclic aromatic hydrocarbons (PAHs). As another variant of APEX, in this paper, we demonstrate a new sulfur-embedding APEX (thia-APEX) reaction that provides various polycyclic thianthrene derivatives in a facile manner from readily available unfunctionalized arenes/PAHs with S-diimidated 1,2-arenedithiols.

Kou P. Kawahara was born in 1995 and raised in Aichi, Japan. He studied chemistry at the School of Science, Nagoya University from 2014, and then he joined the laboratory of Prof. Kenichiro Itami in the Department of Chemistry, School of Science, Nagoya University in 2017 and started research on the development of heteroatom-embedding annulative π-extension (hetero-APEX) reactions with Assoc. Prof. Hideto Ito. He obtained his B.Sc. in 2018, M.Sc. in 2020, and PhD in 2023 under the supervision of Prof. Kenichiro Itami. He is currently working for a chemical company.

Hideto Ito was born in Hakodate, Hokkaido, Japan (1983). He learned organometallic chemistry and organic synthetic chemistry at Hokkaido University under the supervision of Prof. Masaya Sawamura, and received his PhD in 2012. Then, he joined the group of Prof. Kenichiro Itami in Nagoya University as a JSPS postdoctoral research fellow. After being promoted to lecturer in 2013, he has been an associate professor from 2018 in the Department of Chemistry, Graduate School of Science, Nagoya University. He was awarded the PCCP prize (2018), the 68th Chemical Society of Japan Award for Young Chemists (2019) and the Akasaki Award (2019), the Banyu Chemist Award (BCA Award, 2023), and the Thieme Chemistry Journals Award (2024). His recent research focuses on the development of new catalysts and methodologies for the synthesis of nanographenes, polycyclic aromatics, and ladder molecules/polymers.

Kenichiro Itami (b. 1971) studied chemistry at Kyoto University, Japan, and completed his PhD in 1998 with Prof. Yoshihiko Ito. After being an assistant professor (with Prof. Jun-ichi Yoshida) at Kyoto University, he moved to Nagoya University as an associate professor in 2005, where he was promoted to full professor in 2008. He has also been the principal investigator of the Institute of Transformative Bio-Molecules (ITbM) since 2012, and a chief scientist and director of the Molecule Creation Laboratory at RIKEN since 2024. Until 2022, he was the founding director of ITbM. During 2013–2020, he was the research director of the JST-ERATO Itami Molecular Nanocarbon Project. Since 2019, he has also been a research fellow at the Institute of Chemistry, Academia Sinica, Taiwan. His research focuses on the development of innovative functional molecules with significant structures and properties, and the development of rapid molecular-assembly methods using unique catalysts. A representative achievement is the creation of a range of structurally uniform nanocarbons of fundamental and practical importance using bottom-up chemical synthesis.

New advances in chiral nanographene chemistry

Hannah V. Anderson, Nicolai D. Gois and Wesley A. Chalifoux*

Org. Chem. Front., 2023, **10**, 4167–4197

https://doi.org/10.1039/D3QO00517H

Our review article explores the synthesis, structural intricacies, and transformative potential of chiral nanographenes. By merging the inherent chirality of nonplanar, twisted polycyclic aromatic hydrocarbons with the advanced optoelectronic and magnetic properties of nanographenes, the paper unveils innovative methods and lesser-reviewed approaches to designing these remarkable materials. Highlighting non-Scholl techniques and focusing on contorted structures, it provides valuable insights into their unique properties and potential applications in nanoelectronics, thus advancing the frontiers of organic and materials chemistry.

Hannah V. Anderson graduated from Northwest Nazarene University in 2018 with her B.S. in chemistry, and received her doctoral degree in chemistry in 2023 under the supervision of Professor Wesley A. Chalifoux at the University of Nevada, Reno. Her dissertation was focused on the synthesis of novel polycyclic aromatic hydrocarbon compounds, with the goal of producing systems that would exhibit open-shell character. Her current interests lie in higher education and teaching, and she is currently employed as an assistant teaching professor at the University of Nevada, Reno.

Nicolai D. Gois received his B.A. in chemistry from California State University, Stanislaus in 2020. He is currently pursuing a Ph.D. under the supervision of Prof. Wesley Chalifoux at the University of Alberta after relocating with the Chalifoux group from the University of Nevada, Reno in 2023. Nicolai's research is focused on the synthesis of pyrene-based and nitrogen-embedded polycyclic aromatic hydrocarbons with interesting optical and electronic properties.

Wesley A. Chalifoux earned his B.Sc. in chemistry from the University of Alberta in 2004, where he also completed a one-year industrial internship at Raylo Chemicals (Edmonton) under an NSERC IURA award. He continued his academic journey at the University of Alberta as an NSERC and Alberta Ingenuity Scholar, completing his PhD in 2010 under the mentorship of Professor Rik R. Tykwinski. His doctoral research focused on synthesizing and studying polyynes to explore the properties of carbyne, an elusive sp-hybridized carbon allotrope. From 2010 to 2012, Dr Chalifoux served as an NSERC Postdoctoral Fellow at Columbia University, working with Professor James L. Leighton on enantioselective transformation in organic synthesis. He began his independent academic career in 2012 as an associate professor in the Department of Chemistry at the University of Nevada, Reno. In 2023, he returned to Canada to join the University of Alberta as a Professor of Chemistry.

Dr Chalifoux's research centers on developing innovative synthetic methods and exploring organic synthesis of advanced polycyclic aromatics, nanographenes, and graphene nanoribbons, with a focus on unlocking their potential in materials science and nanotechnology.

Nickel-catalyzed dynamic kinetic cross-electrophile coupling of benzylic alcohols and alkenyl triflates

Xuejing Peng, Jingxian Huang, Guan-Yu Han and Xing-Zhong Shu*

Org. Chem. Front., 2024, **11**, 94–99

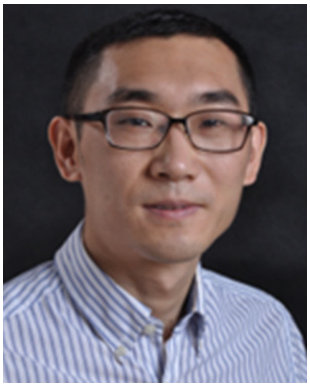
https://doi.org/10.1039/D3QO01416A

The work presents a novel and efficient method for deoxygenative functionalization of alcohols. This nickel-catalyzed transformation enables the direct conversion of benzylic alcohols into structurally diverse cyclic alkenes under mild conditions. The approach demonstrates broad functional-group compatibility and addresses the limitations of conventional reductive coupling methods by offering a pathway to cyclic products. This breakthrough expands the synthetic toolbox for alcohol functionalization and highlights the potential of dynamic kinetic coupling strategies in organic synthesis.

XueJing Peng earned her B.S. and M.S. degrees in pharmacy from Lanzhou University. In 2019, she joined the Shu group to pursue her Ph.D. studies, focusing on nickel-catalyzed transformations. She completed her Ph.D. in 2024.

Jingxian Huang received her B.S. degree in chemistry from Lanzhou University, where she conducted research on nickel-catalyzed reductive cross-coupling reactions under the supervision of Professor Shu. She later earned her Ph.D. from The Chinese University of Hong Kong.

Guan-Yu Han obtained his B.S. degree in pharmaceutical engineering from Shanghai University of Engineering Science. In 2019, he joined the Shu group for his Ph.D. studies, focusing on catalytic asymmetric propargylation reactions.



Xing-Zhong Shu completed his Ph.D. at Lanzhou University and subsequently conducted postdoctoral research with Professor Weiping Tang at the University of Wisconsin–Madison. In 2012, he joined Professor F. Dean Toste's group at the University of California, Berkeley, for further postdoctoral studies. He began his independent academic career at Lanzhou University in 2015. His research interests include reductive cross-coupling, asymmetric catalysis, and organosilicon and organogermanium chemistry.

Pulsed electrolysis: enhancing primary benzylic C(sp^3)–H nucleophilic fluorination

Alexander P. Atkins, Atul K. Chaturvedi, Joseph A. Tate and Alastair J. J. Lennox*

Org. Chem. Front., 2024, **11**, 802–808

https://doi.org/10.1039/D3QO01865B

Organic electrosynthesis is a powerful tool for selective functionalisation of C–H bonds but often faces challenges such as efficient mass transport and over-oxidation problems. In their work titled "Pulsed electrolysis: enhancing primary benzylic C(sp^3)–H nucleophilic fluorination" Lennox and co-workers demonstrate the strength of underutilised pulsed waveforms in alleviating these problems. By including resting periods of no electrical activity during electrolysis, they are able to generate highly reactive primary benzylic cations from their corresponding C–H substrates more efficiently than using conventional direct current electrolysis. The authors elected to showcase this technique on a challenging nucleophilic C–H fluorination reaction, highlighting the power of electrolysis in generating and controlling dynamic redox environments for the synthesis of products that are challenging by traditional chemical methods.

Alexander P. Atkins received his MSci Chemistry degree from the University of Bristol in 2018 after working with Professor Robin Bedford on iron-catalysed cross-coupling reactions. After a year away from chemistry he returned to the University of Bristol to complete a PhD with Dr Alastair Lennox developing C–H functionalisation methodologies using electro- and photochemistry. During his studies, he spent time at Syngenta's research labs in Jealott's Hill. He is currently undertaking postdoctoral research at Imperial College London under the supervision of Professor Mimi Hii where he is focusing on using high-throughput experimentation to improve the sustainability of pharmaceutically relevant reactions.

Atul K. Chaturvedi was born in Barhalganj, India, in 1990. He received his master's degree from the University of Delhi in 2012. He pursued his PhD from CSIR-CDRI under the supervision of Dr Namrata Rastogi. Then, he worked as a postdoctoral researcher in the laboratory of Professor Chandra M. R. Volla at IIT Bombay to explore transition-metal-catalysed C–C and C–heteroatom bond-forming reactions. Currently, he is working in the Lennox lab as a postdoctoral researcher investigating fluorination protocols.

Joseph Tate received his undergraduate degree in chemistry from the University of Bristol and obtained a PhD in the research group of Prof. Guy Lloyd-Jones at the University of Edinburgh. His postgraduate studies focused on the *ipso*-rearrangement and palladium-catalysed cross-coupling reactions of phenol derivatives. Joseph joined Syngenta in 2016 and is currently a Crop Protection

Research Chemist working on weed control research projects.

Alastair Lennox attained his PhD from the University of Bristol (Prof. Guy Lloyd-Jones) and did postdoc studies in Rostock, Germany (Prof. Matthias Beller) as an Alexander von Humboldt Fellow and at the University of Wisconsin, Madison (Prof. Shannon Stahl). In 2018, Alastair returned to the University of Bristol as a Royal Society University Research Fellow to start his independent research programme. He was promoted to Associate Professor of Chemistry in 2022. His group is interested in the development of novel synthetic organic methods with sustainability and mechanism as themes that strongly underpin their approach to this. Specific interests include the exploration of electrochemistry as a tool for performing selective redox transformations, and also in the development of fluorination reactions and fluorinated building blocks.