

ChemComm

Chemical Communications

rsc.li/chemcomm

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(71) 13209-13490 (2025)



Cover

See Kourosh H. Ebrahimi *et al.*, pp. 13221-13235. Image reproduced by permission of Kourosh H. Ebrahimi from *Chem. Commun.*, 2025, 61, 13221. This article is based upon work from COST Action FeSImmChemNet, CA21115, supported by COST, www.COST.eu



Inside cover

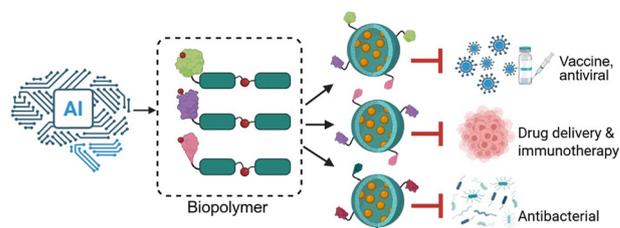
See Eva Rentschler *et al.*, pp. 13389-13392. Image reproduced by permission of Jens-Georg Becker and Eva Rentschler from *Chem. Commun.*, 2025, 61, 13389.

HIGHLIGHTS

13221

Controlling nanocage assembly, towards developing a one-health "plug & play" platform for targeted therapy

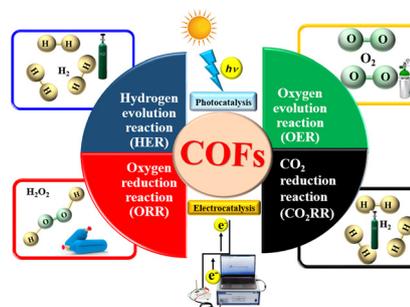
Yujie Sheng, Mark J. Sutton and Kourosh H. Ebrahimi*



13236

Covalent organic frameworks as emerging photocatalysts and electrocatalysts for renewable energy conversion

Alka, Janak, Sadhika Khullar* and Rakesh Kumar*



RSC Advances

At the heart of open access for
the global chemistry community

Editor-in-chief

Russell J Cox

Leibniz Universität Hannover, Germany

We stand for:



Breadth We publish work in all areas of chemistry and reach a global readership



Affordability Low APCs, discounts and waivers make publishing open access achievable and sustainable



Quality Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



Community Led by active researchers, we publish quality work from scientists at every career stage, and all countries

Submit your work now

rsc.li/rsc-advances

@RSC_Adv

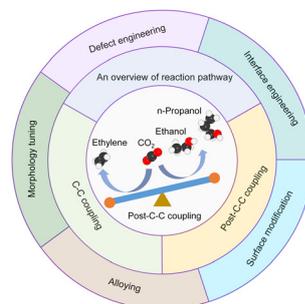


HIGHLIGHTS

13316

A mini review on post-C–C coupling mediated CO₂ electroreduction to C₂₊ alcohols

Jiahuan Du,* Jinyun Liu, Ziwei Liu, Na Tian, Yuting Zhang and Xuehong Gu

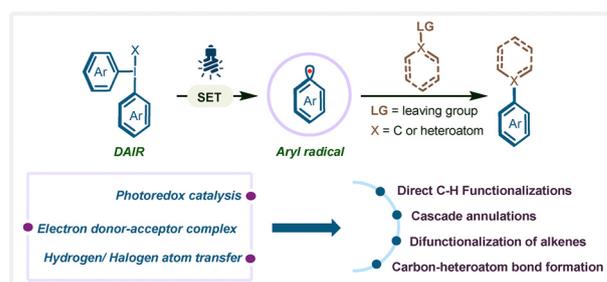


FEATURE ARTICLES

13327

Visible light-driven chemistry of diaryliodonium reagents: mechanistic perspectives and synthetic applications

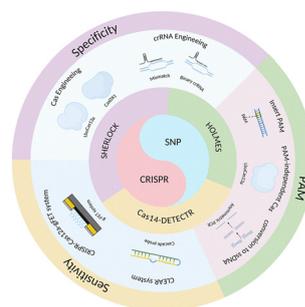
Prahallad Meher, Karan Ramdas Thombare, Sneha Chandra and Sandip Murarka*



13345

CRISPR-based SNP detection technologies advance from classical methods to cutting-edge innovations

Songkuan Zhuang, Botao Bai and Yizhen Liu*



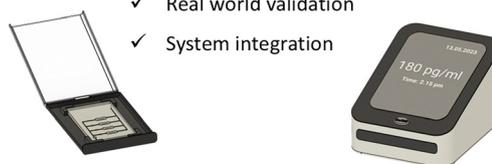
13359

Maximising the translation potential of electrochemical biosensors

Niamh Docherty, Daniel Macdonald, Alisdair Gordon, Alexandra Dobra, Veerappan Mani, Ying Fu, Susan Pang, Melanie Jimenez and Damion K. Corrigan*

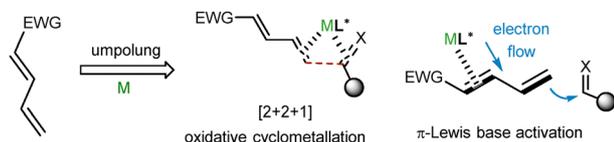
Electrochemical Biosensor Development

- ✓ Prioritising User Needs
- ✓ Designing for Manufacturability
- ✓ Real world validation
- ✓ System integration



FEATURE ARTICLES

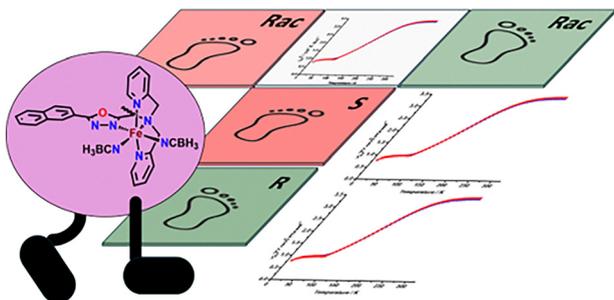
13378

Transition metal-catalysed asymmetric umpolung reactions of electron-deficient π -unsaturated systems

Xue Song, Shangde Liu, Wei Du* and Ying-Chun Chen*

COMMUNICATIONS

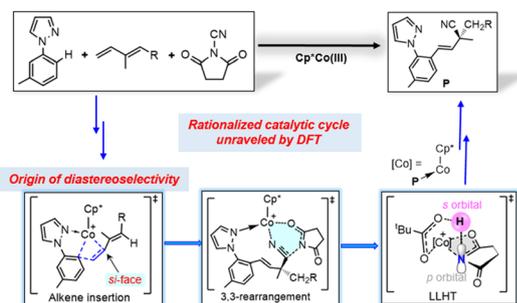
13389



Chirality without compromise: identical spin crossover behavior between the racemate and the enantiopure Fe(II) complexes

Jens-Georg Becker, Sriram Sundaresan, Luca. M. Carrella and Eva Rentschler*

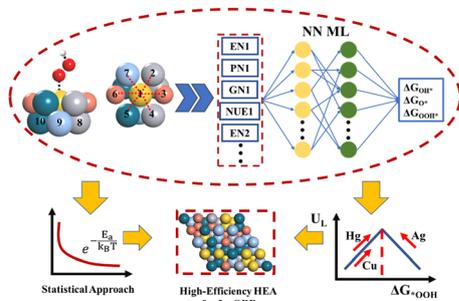
13393



Unconventional diastereoselectivity and mechanism of Cp*Co(III)-catalyzed C–H functionalization of asymmetric dienes: a DFT perspective

Baoping Ling,* Xiaoming Sun, Yuxin Xie, Peng Liu, Wenhui Zhong, Tony D. James and Yuxia Liu*

13397



Machine learning driven rational design of AuAgPdHgCu HEA catalysts for the two-electron oxygen reduction reaction

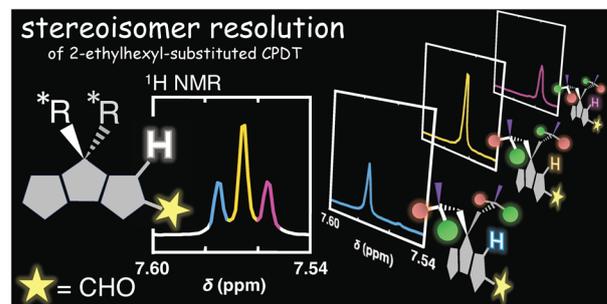
Zhen Chen, Xi Liu, Junyi Zhu, Bihua Hu, Lin Yang, Xin Wang,* Shuqin Song* and Zhongwei Chen*



13401

Stereoisomer resolution of 2-ethylhexyl-substituted cyclopentadithiophene and its effect on optical properties of donor–acceptor–donor conjugated molecules

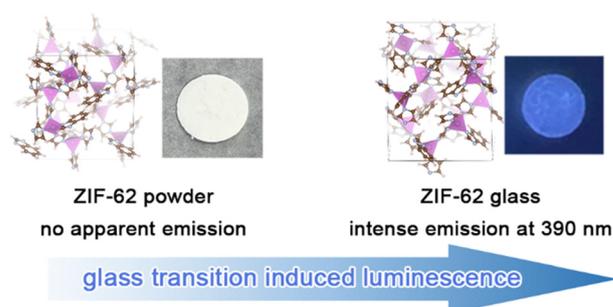
Kenta Yamada, Wataru Suzuki, Jun-ichi Nishida,* Masayuki Gon, Kazuo Tanaka and Tomokazu Umeyama*



13405

Glass transition-induced luminescence in ZIF-62

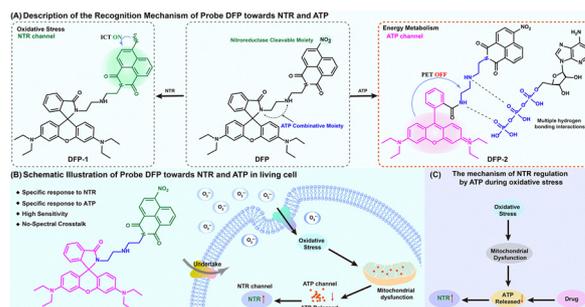
Shuaihua Yu, Haitao Hu, Yichao Lin,* Wen Yang* and Ziqi Tian*



13409

Simultaneous detection of nitroreductase and adenosine triphosphate using a dual-emission fluorescent probe

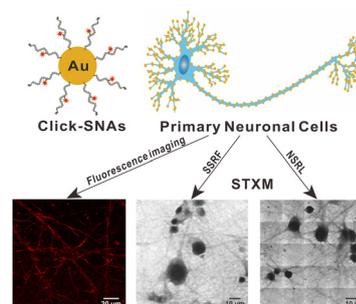
Yumei Xu,* Fang Nian, Jinmei Wei, Li Li, Runtian Ma, Sudai Ma and Wenting Wang*



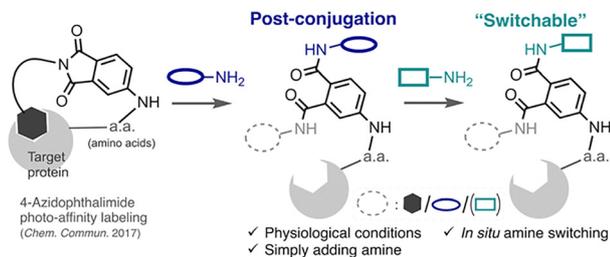
13413

A clickable spherical nucleic acid probe for fluorescence and synchrotron radiation X-ray dual-modality imaging

Xiaobo Wang, Xin Yan, Feng Zhou, Qiaowei Tang, Zijian Xu, Jichao Zhang, Yong Guan, Yanhong Sun, Ying Zhu, Jun Hu and Xiaoqing Cai*



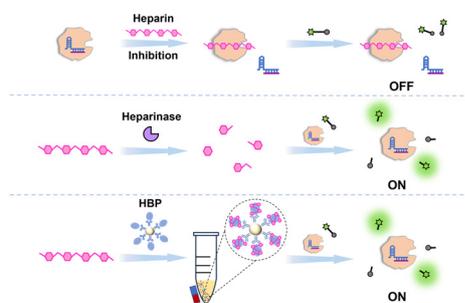
13417



Phthalimide: a potential warhead for switchable and bioorthogonal conjugation

Kosuke Chiba, Takumi Yoshida, Kana Okada, Minoru Ishikawa, Yuichi Hashimoto, Satoshi Obika* and Takao Yamaguchi*

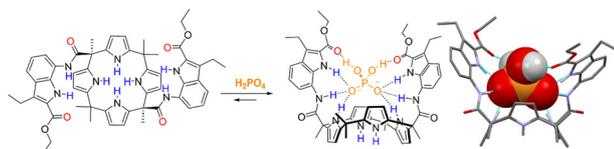
13421



Enzyme inhibition-enabled CRISPR/Cas12a biosensing system for heparin-related non-nucleic acid biomarkers

Ruo Ma, Wenjiao Fan,* Yueran Wang, Xinrui Fei and Chenghui Liu*

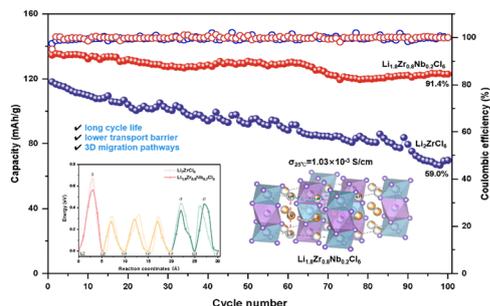
13425



A calix[4]pyrrole functionalized with an amidoindole ester for the selective recognition of the dihydrogen phosphate anion

Ju Hyun Oh, Sang Kyu Shin and Sung Kuk Kim*

13429



Boosting lithium-ion transport in halide solid-state electrolytes by aliovalent substitution for all-solid-state lithium-ion batteries

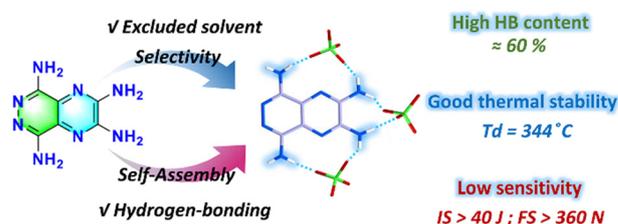
Suyue Chen, Meiling Liu, Zhihao Yang, Yaxue Zhang, Jiaying Liu, Weiying Wu, Tieqi Huang* and Hongtao Liu*



13433

Tetraamino-driven hydrogen-bonded networks: selective self-assembly of energetic materials

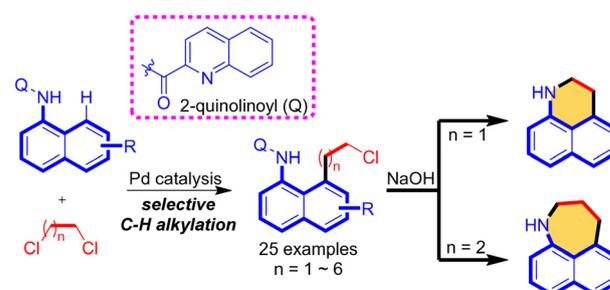
Yaxi Wang, Junliang Liu, Jinxuan He, Xiaoting Ren, Lu Hu* and Siping Pang*



13437

Palladium-catalyzed aromatic C–H alkylation of 1-naphthylamines with dichloroalkanes and its application in fused polycyclic amine synthesis

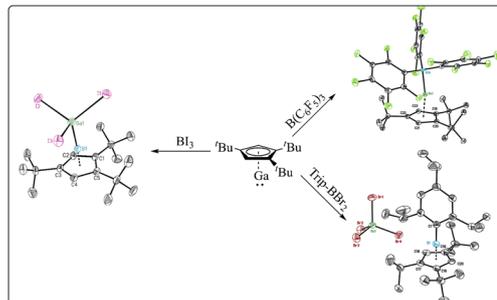
Yixin Shi, Ziyi Zhou, Yilin Hu, Siyun Wang, Mingzhe Hong, Kai Cheng,* Chun-Xiao Jia* and Jie-Ping Wan*



13441

1,2,4-Tri(^tBu)cyclopentadienyl gallium (Cp^{'''}Ga) as a versatile reagent for the synthesis of Lewis adducts and ionic compounds

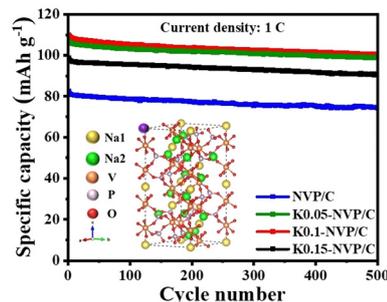
Yi Ding,* Yongheng Tang, Mohd Nazish, Paul Niklas Ruth, Sophia Luisa Wachendorf, Regine Herbst-Irmer, Dietmar Stalke* and Herbert W. Roesky*



13445

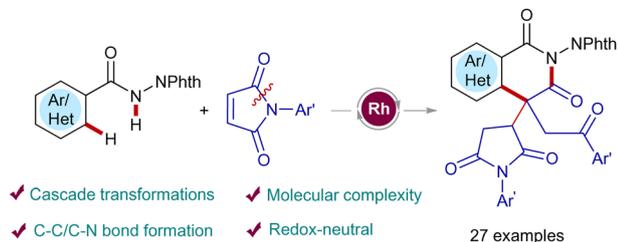
K⁺ doping-induced pillaring effect in Na₃V₂(PO₄)₃ for enhanced rate performance in sodium-ion batteries

Yingqi Wu, Lijun Xu, Jinhui Zhong, Xue Zhang, Xuejie Wang, Guoyu Tang, Bicheng Zhu and Tao Liu*



COMMUNICATIONS

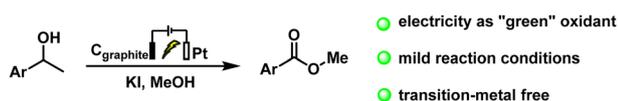
13449



Cascade C–H functionalization/annulation of arylamides: access to succinimide-tethered isoquinoline-1,3-diones

Prabhat Kumar Maharana, Perumal Muthuraja, Subhradeep Kar, Tamilthendral Veerappan and Tharmalingam Punniyamurthy*

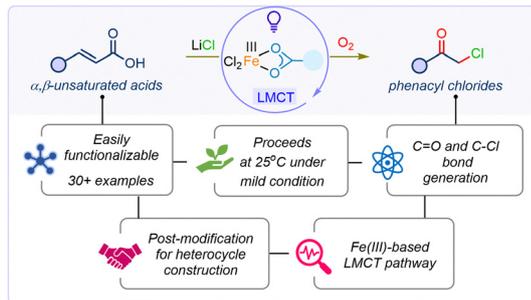
13453



Electrochemical oxidative cleavage of C(OH)–C bonds for sustainable synthesis of esters

Ran Ma,* Tong Zhang, Yuqi You, Yixin Wang, Zhiyuan Jiang, Ji-Kai Li and Yang Yang*

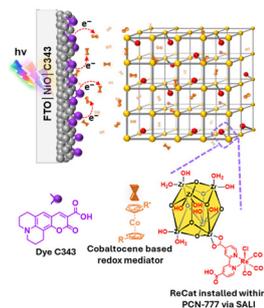
13457



Decarboxylative chlorination of α,β -unsaturated acids

Soumya Mondal, Siba P. Midya, Soumadeep Ghosh, Souvik Maiti, Subal Mondal, Tarun Jana and Pradyut Ghosh*

13461



Dye-sensitized photoelectrochemical cell combining a MOF catalyst and cobaltocene CoCpCp* as redox mediator for CO₂ reduction

Wojciech G. Sikorski, Tianbo Duan, Tijmen M. A. Bakker, Joost N. H. Reek and Jarl Ivar van der Vlugt*

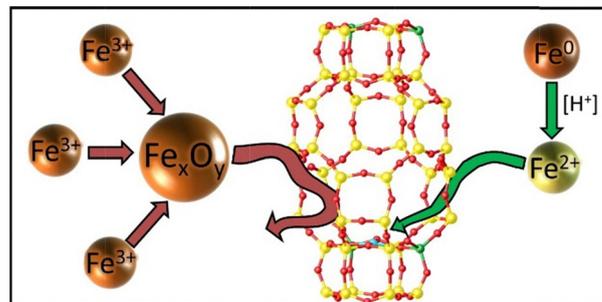


COMMUNICATIONS

13465

Novel and more facile synthesis of highly dispersed iron in small-pore zeolites by ion exchange for catalytic applications

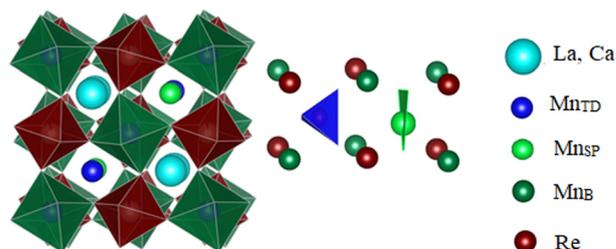
Simon Barth, Leo Scheibe, Maria Casapu and Jan-Dierk Grunwaldt*



13469

Chemical tuning of a double double perovskite oxide

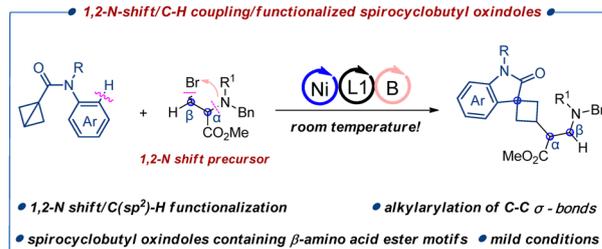
Azizah Almadhi, Sean D. Injac, Kunlang Ji, Clemens Ritter and J. Paul Attfield*



13473

Nickel-catalyzed sequential 1,2-*N*-migration/BCBs ring-opening to access spirocyclobutyl β -amino acid esters

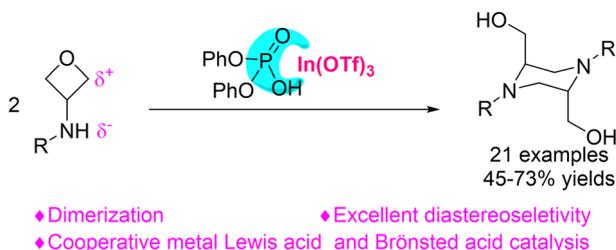
Xin-Yu Li, Mei-Qiu Xiao, Li-Juan Zhou, Jia-Qi Zhang, Meng-Yan Zhao, Shuo-Wen Wang* and Shi Tang*



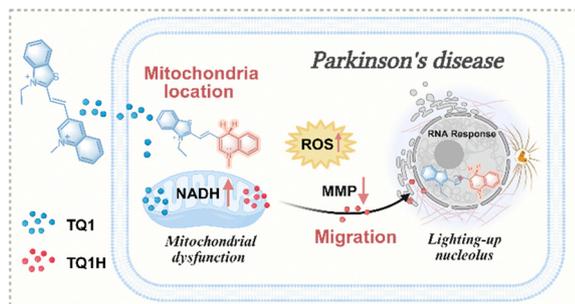
13477

Diastereoselective synthesis of 1,4-diaryl piperazines through the dimerization of 3-aminooxetanes with cooperative indium–diphenyl phosphate catalysis

Long Cheng, Cuicui Nian, Zhengyu Han, Jianwei Sun and Hai Huang*



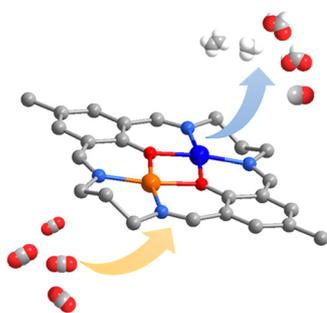
13481



A NAD(P)H-driven mitochondria-to-nucleus probe for dual-organelle imaging in dopaminergic toxicity models

Qu Tang, Bin Jiang, Majun Yang, Jiayun Guan, Qi Wang,*
Yuling Qin* and Li Wu*

13485



Copper-based homometallic and heterometallic binuclear complexes for electrocatalytic CO₂ reduction

Xin-Ling Xie, Feng Chen, Wen-Wen Wang, Lei-Yan Lyu,
Meng-Jiao Sun, Teng Zhang* and Rong Cao*

