Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

Chemical Science

rsc.li/chemical-science

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 2041-6539 CODEN CSHCBM 16(14) 5757–6122 (2025)

Cover
See Daniel Maspoch, Inhar Imaz *et al.*, pp. 5770–5775. Image reproduced by permission of Daniel Maspoch from *Chem. Sci.*, 2025, **16**, 5770. Image created by Maria Àngels Vilella, @art_of_valkyrie.

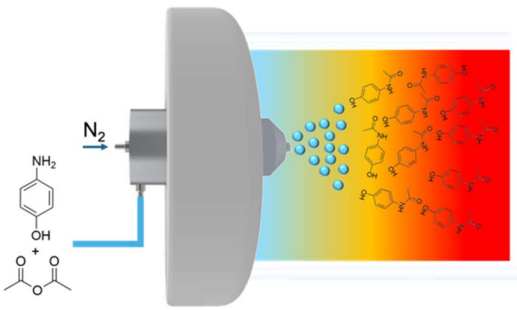
Inside cover
See Walter Leitner, Alexis Bordet *et al.*, pp. 5776–5785. Image reproduced by permission of Johannes Zenner, Manisha Durai and Alexis Bordet from *Chem. Sci.*, 2025, **16**, 5776.

EDGE ARTICLES

5770

Synthesis of organic molecules *via* spray-drying

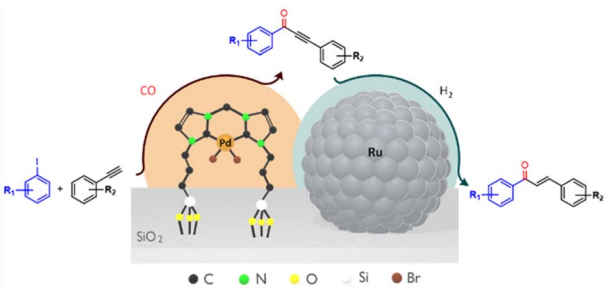
Gerard Pena, Jorge Albalad, Daniel Maspoch* and Inhar Imaz*



5776

One-pot synthesis of *E*-chalcones using a multifunctional catalyst comprised of ruthenium nanoparticles and palladium N-heterocyclic carbene complexes immobilized on silica

Manisha Durai, Yufei Wu, Jacob Johny, Walid Hetaba, Thomas Wiegand, Walter Leitner* and Alexis Bordet*



View Article Online

ROYAL SOCIETY OF CHEMISTRY

NEW JOURNAL

RSC Applied Interfaces

GOLD OPEN ACCESS

Interfacial and surface research with an applied focus

Interdisciplinary and open access

rsc.li/RSCApplInter

Fundamental questions
Elemental answers

Registered charity number: 207890

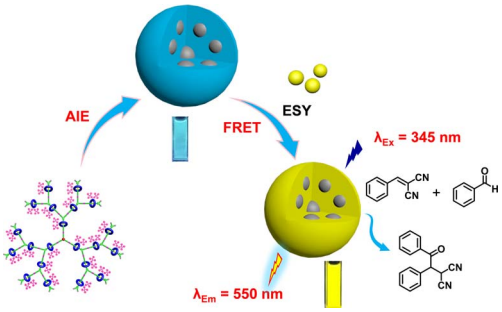
Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

5786

Artificial light harvesting systems based on novel AIEgen-branched rotaxane dendrimers for photocatalyzed functionalization of C–H bonds

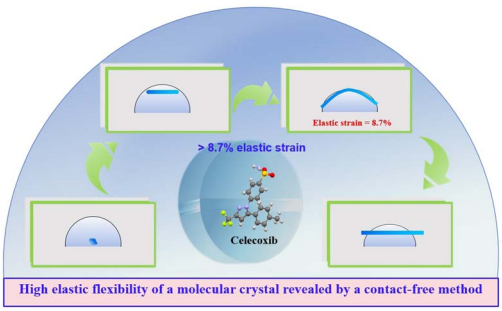
Xiao-Qin Xu, Yi-Ru Song, Jiang-Han Cao, Wei-Jian Li, Yu Zhu, Dan-Yang Zhang, Wei Wang, Xu-Qing Wang* and Hai-Bo Yang*



5797

How elastically flexible can molecular crystals be? – a new record

Zhengzheng Zhou, Vikram Chandrashekhar Joshi, Yiwang Guo, Tianyi Xiang, Zijian Wang and Changquan Calvin Sun*



EDITORIAL

5803

Celebrating the 100th anniversary of Sun Yat-Sen university

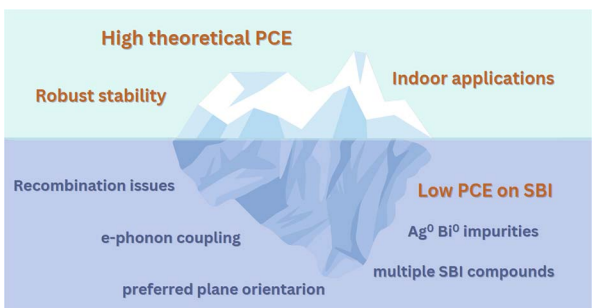
Wei-Xiong Zhang, Cheng-Yong Su, Xiao-Ming Chen and Song Gao

PERSPECTIVES

5807

Advancements and prospects for eco-friendly, high-performance silver bismuth halide solar cells

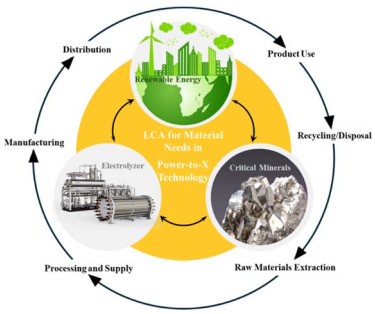
Natalia Belen Correa Guerrero, M. Dolores Perez,* Naoyuki Shibayama* and Tsutomu Miyasaka*



Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PERSPECTIVES

5819

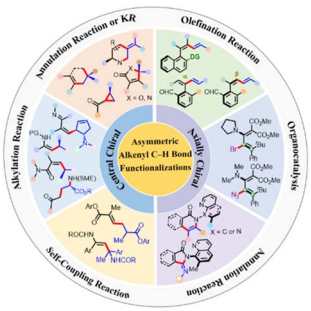


Material needs for power-to-X systems for CO_2 utilization require a life cycle approach

Aloka Kumar Sahu, Thomas E. Rufford,* Saleem H. Ali,* Ruth Knibbe, Simon Smart, Feng Jiao, Alexis T. Bell and Xiwang Zhang

REVIEW

5836

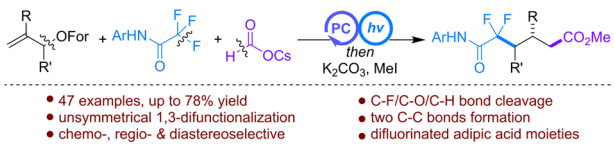


Recent advances in catalytic asymmetric alkenyl C(sp^2)–H bond functionalizations

Xiao-Ju Si, Tian-Ci Wang, Teck-Peng Loh* and Ming-Zhu Lu*

EDGE ARTICLES

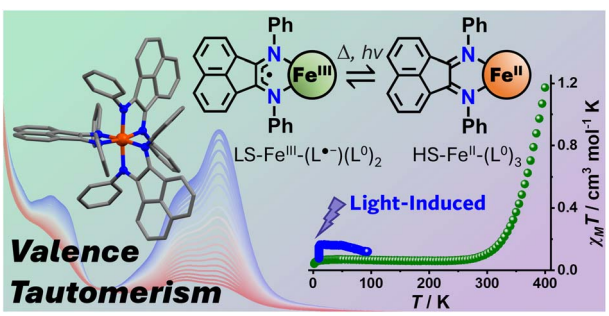
5849



Photocatalytic 1,3-difluoroalkylcarboxylation of alkenes by triple kinetic-controlled radical self-ordering

Hong Fu, Zuo-Shuai Wang, Si-Jia Li, Lin-Yuan Zhu, Xiao-Jian Wang, Hong-Chen Wang and Bing Han*

5857



Thermal- and light-induced valence tautomerism with a concerted spin transition in an iron tris(diimine) complex

Jett T. Janetzki, Dominic S. Brown, Florian Daumann, I. Haseena Ismail, Robert W. Gable, Moya A. Hay, Roger J. Mulder, Alyona A. Starikova, Birgit Weber, Marcus J. Giansiracusa and Colette Boskovic*

This journal is © The Royal Society of Chemistry 2025

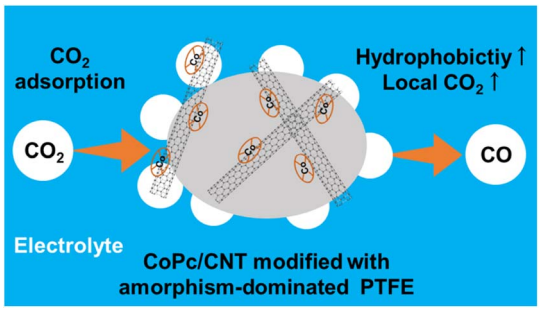
Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

5872

Tuning the microenvironment of immobilized molecular catalysts for selective electrochemical CO_2 reduction

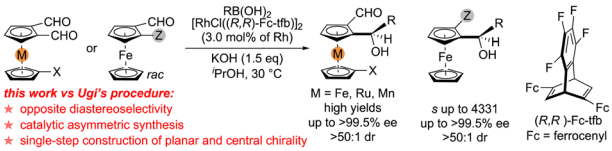
Ziying Qin, Haocheng Zhuang, Dayou Song, Gong Zhang, Hui Gao, Xiaowei Du, Mingyang Jiang, Peng Zhang* and Jinlong Gong*



5880

Asymmetric synthesis of metallocenes with planar and central chirality by rhodium-catalyzed desymmetrization reactions

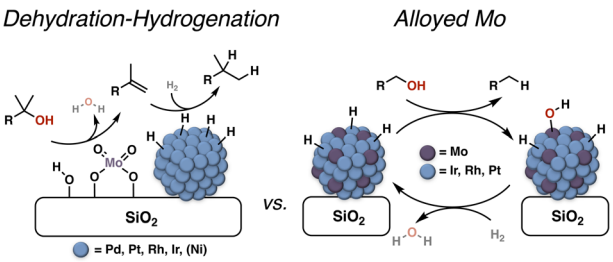
Nan-Nan Hang, En-Guang Tong, Ting Qi, Chao Sun and Jialin Ming*



5887

Alloyed molybdenum enables efficient alcohol hydrodeoxygenation with supported bimetallic catalysts

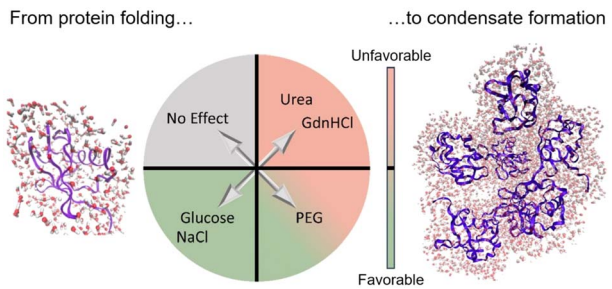
Christian Ehinger, Stephan Pollitt, Jordan De Jesus Silva, Xiaoyu Zhou, Kazutaka Sakamoto, Maarten Nachtegaal, Olga Safonova* and Christophe Copéret*



5897

Tuning biological processes *via* co-solutes: from single proteins to protein condensates – the case of α-elastin condensation

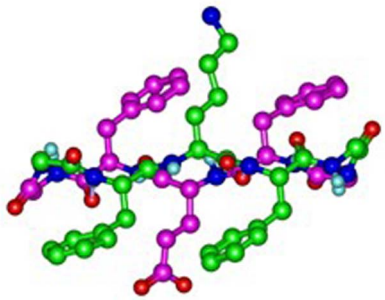
B. König, S. Pezzotti, G. Schwaab and M. Havenith*



Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

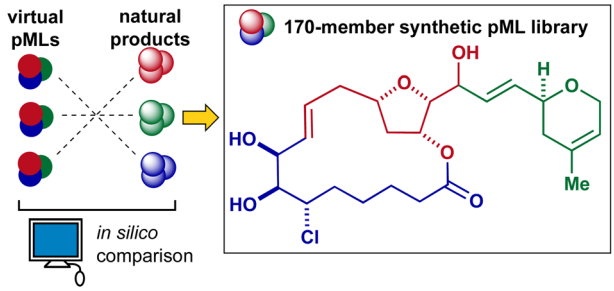
5907



Formation of rippled β-sheets from mixed chirality linear and cyclic peptides—new structural motifs based on the pauling-corey rippled β-sheet

Amaruka Hazari,* Michael R. Sawaya, Hyeonju Lee, Maria Sajimon, Hyungjun Kim, William A. Goddard III, David Eisenberg and Jevgenij A. Raskatov*

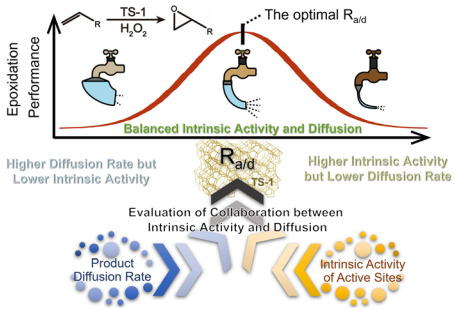
5918



A sequential esterification-ring closing metathesis-Nozaki–Hiyama–Kishi strategy for constructing a natural product-like library of tetrahydrofuran-containing macrolides

Daniel Driedger, Darryl M. Wilson and Robert Britton*

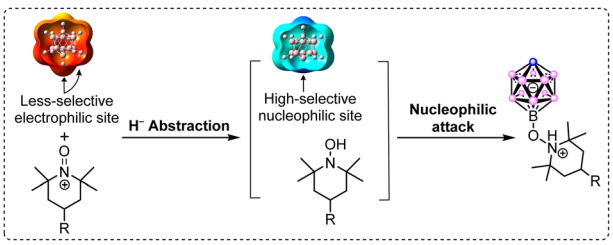
5931



Evaluation of the collaboration between intrinsic activity and diffusion: a descriptor for alkene epoxidation catalyzed by TS-1

Di Pan, Jiayu Yu, Ke Du, Kexin Yan, Ling Ding, Yahong Zhang* and Yi Tang*

5942



Oxidation-induced nucleophilic substitution at the electron-rich B(12) vertex in $[CB_{11}H_{12}]^-$ under catalyst-free conditions

Wanqi Sun, Yujie Jin, Yongtao Wang,* Zeyu Wen, Jizeng Sun, Jia Yao, Simon Duttwyler and Haoran Li*

This journal is © The Royal Society of Chemistry 2025

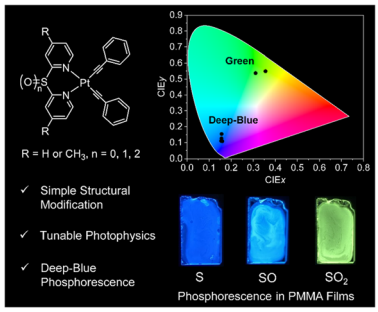
Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

5948

Deep-blue phosphorescence from platinum(II) bis(acetylide) complexes with sulfur-bridged dipyridyl ligands

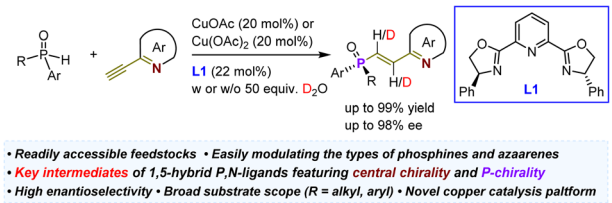
Ka-Ming Tong, Jessica Toigo and Michael O. Wolf*



5957

Asymmetric copper-catalyzed hydrophosphinylation of ethynylazaarenes to access *P*-chiral 2-azaaryl-ethylphosphine oxides

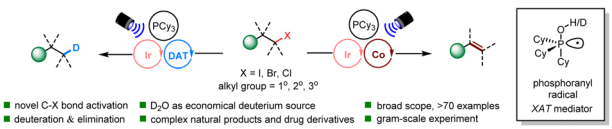
Jialiang Zhang, Jiajia Guo, Ruhui Xu, Di Zheng, Kai Lian, Zhaoxia Zhang, Shanshan Cao* and Zhiyong Jiang*



5967

Photo-induced dehalogenative deuteration and elimination of alkyl halides enabled by phosphine-mediated halogen-atom transfer

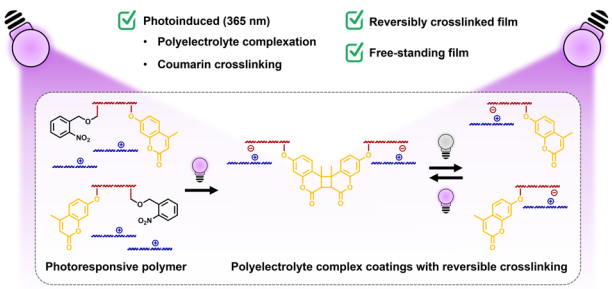
Wei Shi, Bin Guan, Jian Tian, Chao Yang, Lin Guo, Yating Zhao* and Wujiong Xia*



5976

Photoinduced polyelectrolyte complexation for the formation of stable films with reversible crosslinking

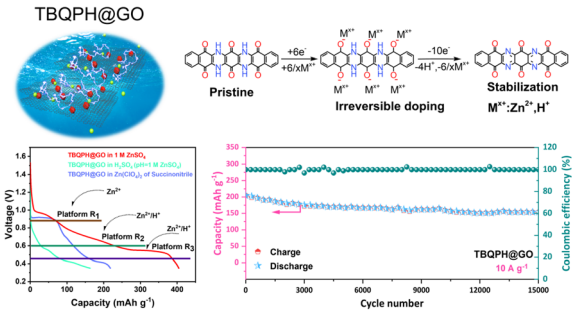
Krisada Auepattana-Aumrung, Lauren M. Bishop, Kaden C. Stevens, Kevin A. Stewart, Daniel Crespy* and Brent S. Sumerlin*



Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

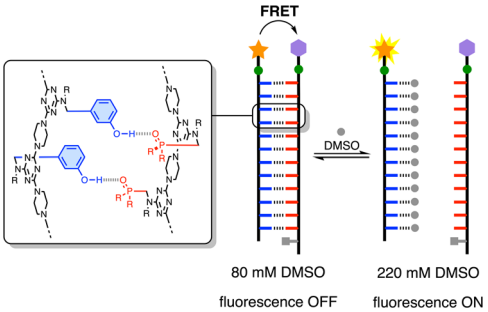
5986



High-capacity organic cathode boosted by coordination chemistry for energy-dense aqueous zinc-organic batteries

Guanzhong Ma, Zhengyu Ju, Yutong Chen, Runmo Wang, Zihao Yuan, Huiping Du, Mian Cai, Meng Gao, Yaqun Wang* and Guihua Yu*

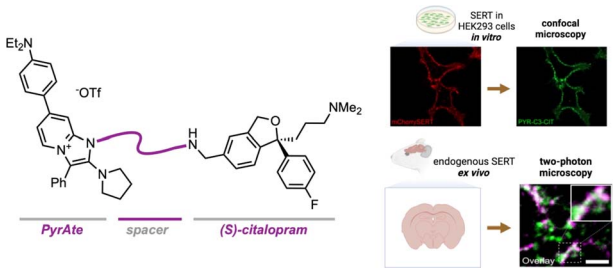
5995



Cooperativity in the assembly of H-bonded duplexes of synthetic recognition-encoded melamine oligomers

Mohit Dhiman, Luis Escobar, Joseph T. Smith and Christopher A. Hunter*

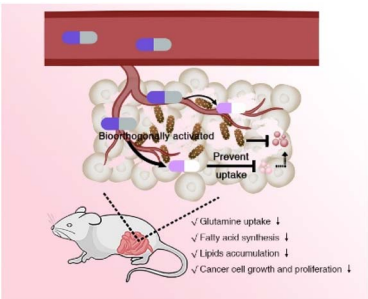
6003



Fluorescent PyrAte-(*S*)-citalopram conjugates enable imaging of the serotonin transporter in living tissue

Oliver J. V. Belleza, Iakovos Saridakis, Nadja K. Singer, Xavier Westergaard, Sergio Armentia Matheu, Miran Lemmerer, Margaux Riomet, Pedro A. Sánchez-Murcia, Nina Kastner, Stefanie Rukavina, Yi Xiao, Kathrin Jäntsch, Marco Niello, Klaus Schicker, David Sulzer, Leticia González,* Nuno Maulide* and Harald H. Sitte*

6014



A bacteria-based bioorthogonal platform disrupts the flexible lipid homeostasis for potent metabolic therapy

Jiadai Yi, Huan Wang,* Qingqing Deng, Congcong Huang, Lu Zhang, Mengyu Sun, Jinsong Ren* and Xiaogang Qu*

This journal is © The Royal Society of Chemistry 2025

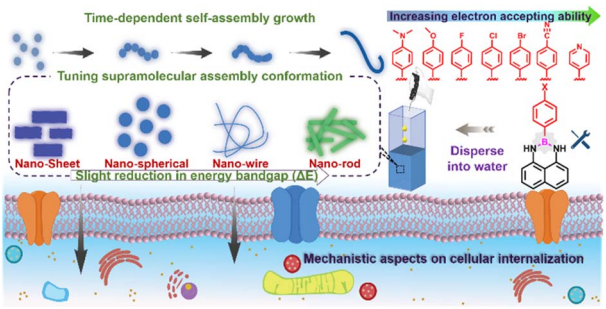
Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

6023

Mechanistic investigation on cellular internalization triggering structure-induced conformational modulation of boron–nitrogen luminogens

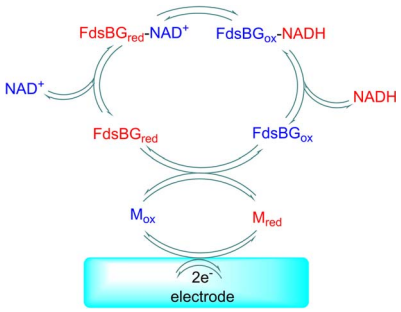
Retwik Parui, Hirakjyoti Roy, Niranjan Meher, Siddhartha Sankar Ghosh and Parameswar Krishnan Iyer*



6035

Reversible enzyme-catalysed NAD$^+$/NADH electrochemistry

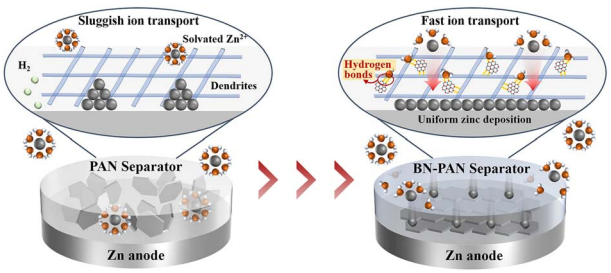
Peter D. Giang, Dimitri Niks, Sheron Hakopian, Russ Hille and Paul V. Bernhardt*



6050

Dissecting ionic favorable hydrogen bond chemistry in hybrid separators for aqueous zinc-ion batteries

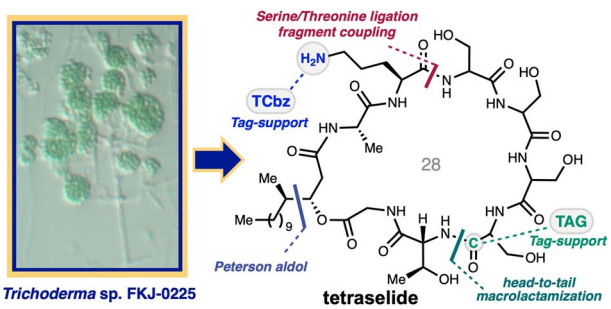
Yixiu Wang, Heng Zhou, Shiqiang Wei,* Hengjie Liu, Shuangming Chen,* Xin Chen, Kefu Zhu, Xunshuang Zhang, Yang Si, Xiaojun Wu, Ran Long, Liangbin Li and Li Song*



6060

Isolation, total synthesis and structure determination of antifungal macrocyclic depsipeptide, tetraselide

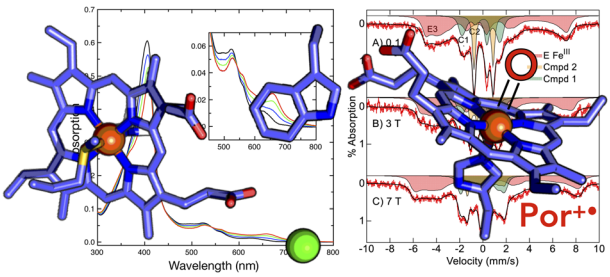
Hiroki Nakahara, Goh Sennari, Haruki Azami, Hayama Tsutsumi, Yoshihiro Watanabe, Yoshihiko Noguchi, Yuki Inahashi, Masato Iwatsuki, Tomoyasu Hirose* and Toshiaki Sunazuka*



Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

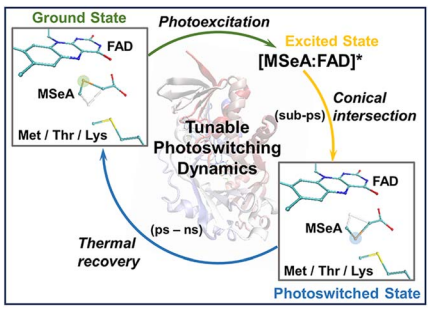
6070



Reactivity of canonical bacterial cytochrome *c* peroxidases: insights into the electronic structure of compound I

Patrick Hewitt, Michael P. Hendrich and Sean J. Elliott*

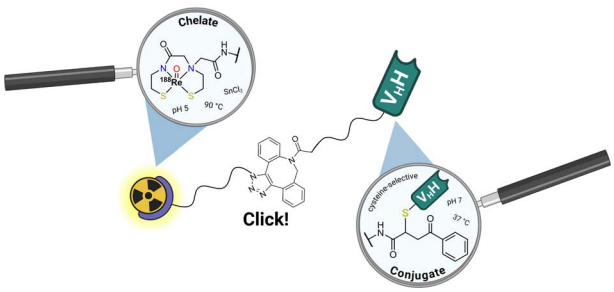
6079



Mechanism and dynamics of photoswitchable flavoprotein charge-transfer complexes

Bo Zhuang,* Guangliu Ran, Wenkai Zhang* and Feng Gai*

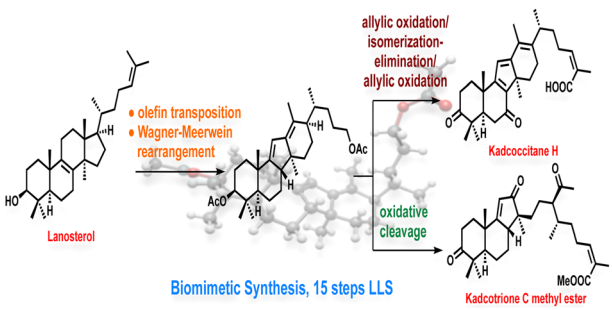
6089



Cysteine-selective [^{188}Re]Re(v) radiolabelling of a Nanobody® for targeted radionuclide therapy using a "chelate-then-click" approach

Diana R. Melis, Charlotte Segers, Jasmien Wellens, Michiel Van de Voorde, Olivier Blacque, Maarten Ooms, Gilles Gasser* and Tomas Opsomer*

6099



Biomimetic syntheses of kadcoccitane H and kadcotrione C methyl ester

Dattatraya H. Dethe,* Salman A. Siddiqui and Chirantan Singha

This journal is © The Royal Society of Chemistry 2025

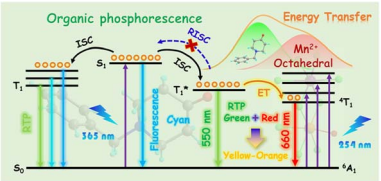
Open Access Article. Published on 02 April 2025. Downloaded on 2/12/2026 5:09:50 AM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

EDGE ARTICLES

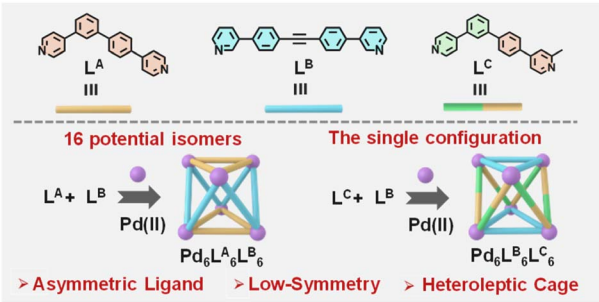
6104

Efficient energy transfer from organic triplet states to Mn^{2+} dopants for dynamic tunable multicolor afterglow in 1D hybrid cadmium chloride

Ke Zhang, Zhikai Qi,* Nan Zhang, Xingxing Zhao, Yanli Fan, Long Sun, Guojun Zhou, Shi-Li Li and Xian-Ming Zhang*



6114

Configurational control of low-symmetry heteroleptic metal–organic cages with asymmetric ligands

Hao Yu, Ziteng Guo, Jie Tang, Ningxu Han, Junjuan Shi, Meng Li, Houyu Zhang and Ming Wang*