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 14(17) 4437–4654 (2023)

Cover
See Tsuneomi Kawasaki *et al.*, pp. 4480–4484. Image reproduced by permission of Tsuneomi Kawasaki from *Chem. Sci.*, 2023, **14**, 4480.

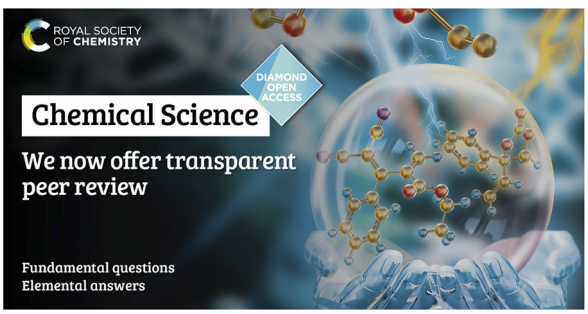
Inside cover
See Mingoo Jin, Hajime Ito *et al.*, pp. 4485–4494. Image reproduced by permission of Alexander S. Mikherdov, Mingoo Jin and Hajime Ito from *Chem. Sci.*, 2023, **14**, 4485.

EDITORIAL

4447

How can you trust what you read?

May C. Copsey and Andrew I. Cooper

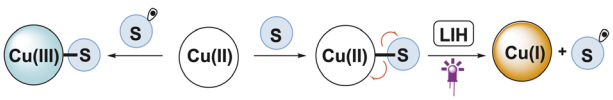


PERSPECTIVES

4449

Light-induced homolysis of copper(II)-complexes – a perspective for photocatalysis

Alexander Reichle and Oliver Reiser*



Chemical Science (electronic: ISSN 2041-6539) is published 48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK.

Chemical Science is a Gold Open Access journal and all articles from 2015 onwards are free to read.
Please email orders@rsc.org to register your interest or contact Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail **orders@rsc.org**

Chemical Science

rsc.li/chemical-science

Information for Authors

Full details on how to submit material for publication in Chemical Science are given in the Instructions for Authors (available from http://**www.rsc.org/authors**). Submissions should be made via the journal's homepage: **rsc.li/chemical-science**

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

Registered charity number: 207890

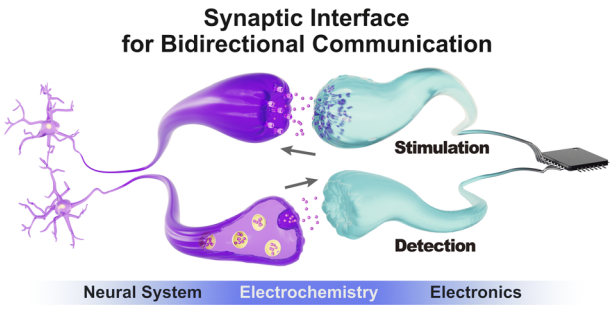
ROYAL SOCIETY OF CHEMISTRY

PERSPECTIVES

4463

Streamlining the interface between electronics and neural systems for bidirectional electrochemical communication

Wonkyung Cho, Sun-heui Yoon and Taek Dong Chung*

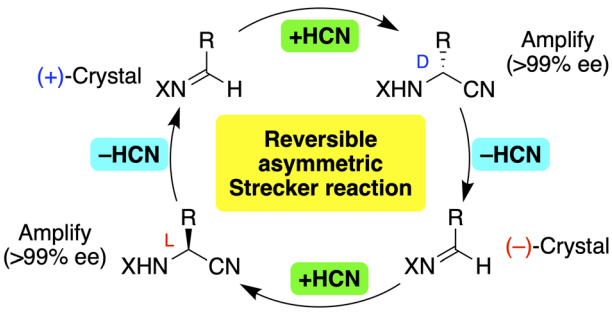


EDGE ARTICLES

4480

Chirally and chemically reversible Strecker reaction

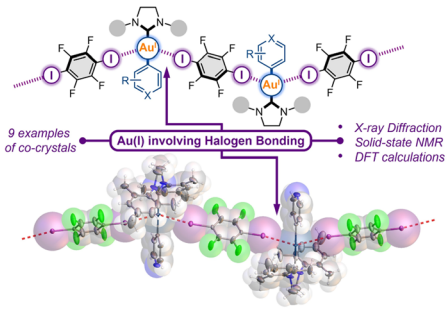
Yutaro Machida, Yudai Tanaka, Yuya Masuda, Aya Kimura and Tsuneomi Kawasaki*



4485

Exploring Au(I) involving halogen bonding with N-heterocyclic carbene Au(I) aryl complexes in crystalline media

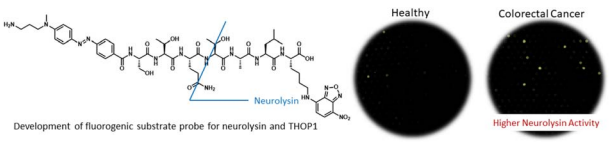
Alexander S. Mikherdov, Mingoo Jin* and Hajime Ito*



4495

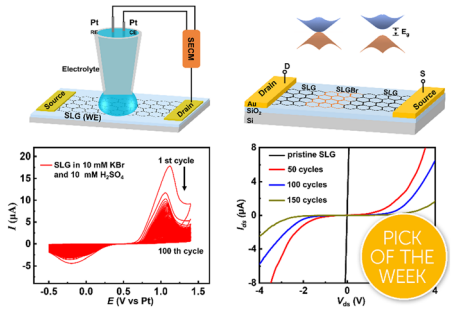
Development of fluorogenic substrates for colorectal tumor-related neuropeptidases for activity-based diagnosis

Norimichi Nagano, Yuki Ichihashi, Toru Komatsu,* Hiroyuki Matsuzaki, Keisuke Hata, Toshiaki Watanabe, Yoshihiro Misawa, Misa Suzuki, Shingo Sakamoto, Yu Kagami, Ayumi Kashiro, Keiko Takeuchi, Yukihide Kanemitsu, Hiroki Ochiai, Rikiya Watanabe, Kazufumi Honda and Yasuteru Urano*



EDGE ARTICLES

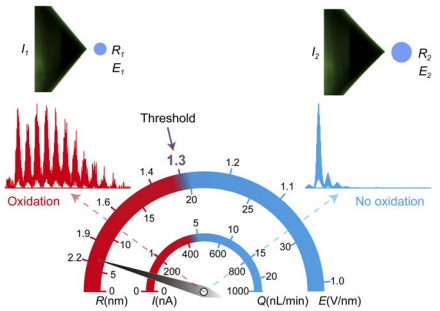
4500



Electrochemical regulation of the band gap of single layer graphene: from semimetal to semiconductor

Lanping Zeng, Weiying Song, Xiangfeng Jin, Quanfeng He, Lianhuan Han,* Yuan-fei Wu, Corinne Lagrost, Yann Leroux, Philippe Hapiot, Yang Cao,* Jun Cheng and Dongping Zhan*

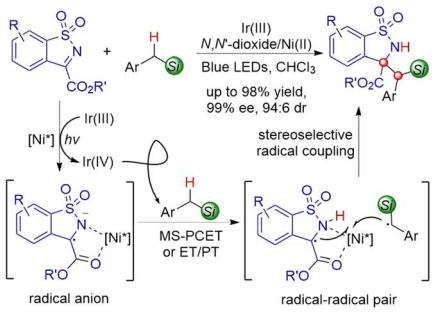
4506



Tuning oxidative modification by a strong electric field using nanoESI of highly conductive solutions near the minimum flow rate

Zhongbao Han, Nozomu Omata, Takeshi Matsuda, Shoki Hishida, Shuuhei Takiguchi, Ryoki Komori, Riku Suzuki and Lee Chuin Chen*

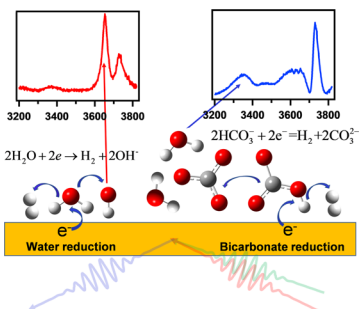
4516



Visible-light-induced chemo-, diastereo- and enantioselective α-C(sp^3)–H functionalization of alkyl silanes

Lili Feng, Xiaofan Chen, Ning Guo, Yuqiao Zhou, Lili Lin, Weidi Cao* and Xiaoming Feng*

4523



Direct observation of bicarbonate and water reduction on gold: understanding the potential dependent proton source during hydrogen evolution

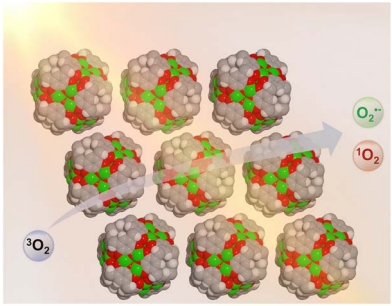
Gang-Hua Deng, Quansong Zhu, Jaclyn Rebstock, Tomaz Neves-Garcia and L. Robert Baker*

EDGE ARTICLES

4532

A copper-seamed coordination nanocapsule as a semiconductor photocatalyst for molecular oxygen activation

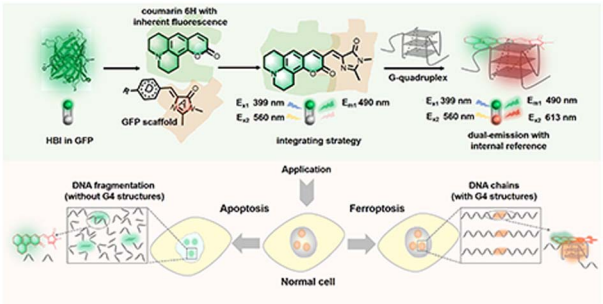
Xiangquan Hu, Meirong Han, Leicheng Wang, Li Shao, Yadav Peeyush, Jialei Du,* Steven P. Kelley, Scott J. Dalgarno, David A. Atwood, Sisi Feng* and Jerry L. Atwood*



4538

Engineering fluorescent protein chromophores with an internal reference for high-fidelity ratiometric G4 imaging in living cells

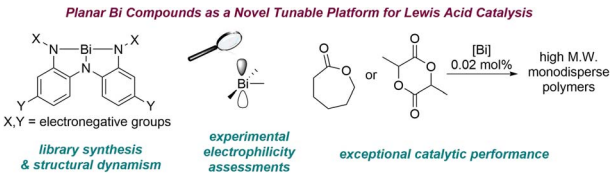
Jiao-Na Han, Caijun Zhong, Mingmin Ge, Shi Kuang* and Zhou Nie*



4549

Planar bismuth triamides: a tunable platform for main group Lewis acidity and polymerization catalysis

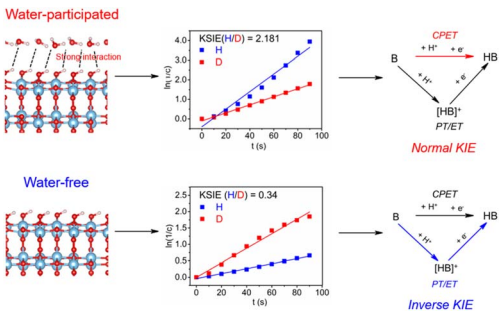
Tyler J. Hannah, W. Michael McCarvell, Tamina Kirsch, Joseph Bedard, Toren Hynes, Jacqueline Mayho, Karlee L. Bamford, Cyler W. Vos, Christopher M. Kozak, Tanner George, Jason D. Masuda and S. S. Chitnis*



4564

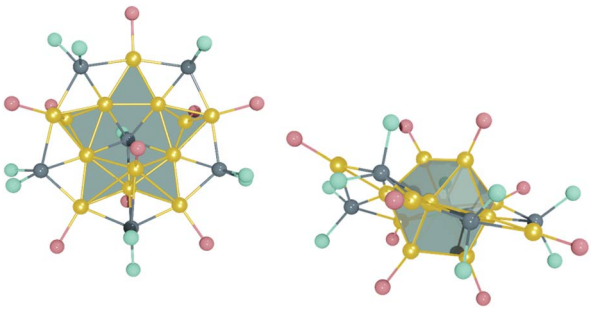
Water molecule switching heterogeneous proton-coupled electron transfer pathway

Zhonghuan Liu, Wei Peng, Yuhan Lin, Xinyu Lin, Shikang Yin, Shuhan Jia, Dongge Ma, Yan Yan,* Peng Zhou,* Wanhong Ma* and Jincai Zhao



EDGE ARTICLES

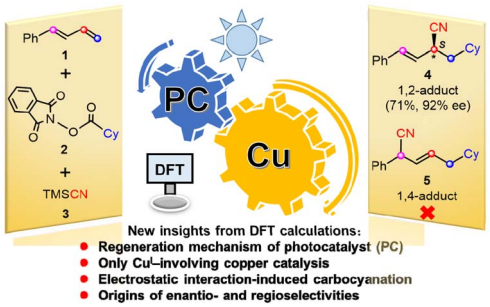
4571



Synthesis and characterisation of four bimetallic gold–gallium clusters with Au–Ga rings as a new structural motif in gold cluster chemistry

Markus Strienz, Florian Fetzer and Andreas Schnepf*

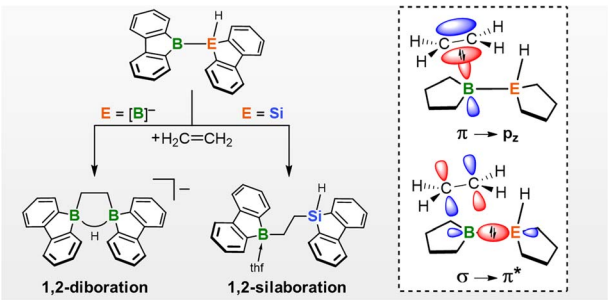
4580



New insights into the mechanism of synergetic photoredox/copper(I)-catalyzed carbocyanation of 1,3-dienes: a DFT study

Yanhong Liu, Aili Feng, Rongxiu Zhu and Dongju Zhang*

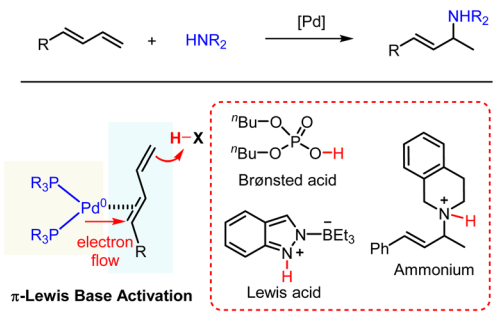
4589



Catalyst-free diboration and silaboration of alkenes and alkynes using bis(9-heterofluorenyl)s

Jannik Gilmer, Timo Trageser, Luis Čaić, Alexander Virovets, Michael Bolte, Hans-Wolfram Lerner, Felipe Fantuzzi* and Matthias Wagner*

4597



A metal π-Lewis base activation model for Pd-catalyzed hydroamination of amines and 1,3-dienes

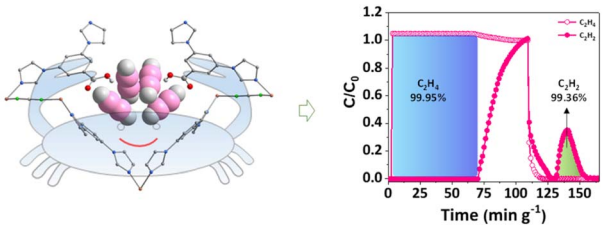
Xiao Yan, Xiu-Ming Yang, Peng Yan, Bo Zhao, Rong Zeng, Bin Pan, Ying-Chun Chen, Lei Zhu* and Qin Ouyang*

EDGE ARTICLES

4605

Formation and fine-tuning of metal–organic frameworks with carboxylic pincers for the recognition of a C_2H_2 tetramer and highly selective separation of C_2H_2/C_2H_4

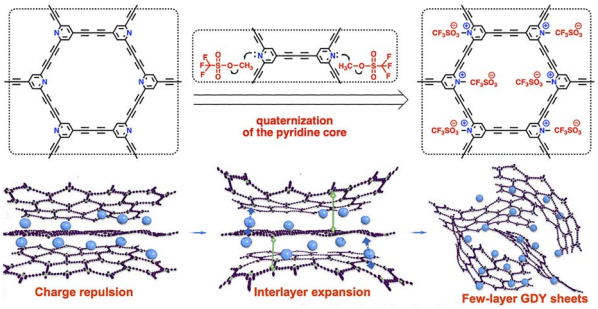
Yuefeng Duan, Yuhang Huang, Chongqing Wang, Qian Wang, Kai Ge, Zhiyong Lu, Huijie Wang, Jingui Duan,* Junfeng Bai* and Wanqin Jin



4612

Scalable synthesis of soluble crystalline ionic-graphdiyne by controlled ion expansion

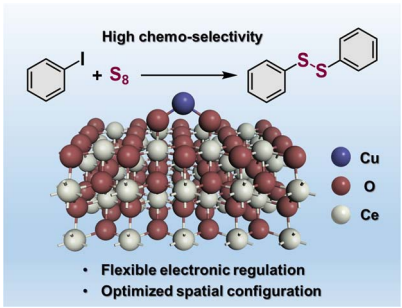
Lingling Wang, Lu Qi, Qinglei Zhang, Binghui Xue, Zhiqiang Zheng, Panchao Yin, Yurui Xue, Wenlong Yang* and Yuliang Li*



4620

Single-atom copper catalyst for the *S*-arylation reaction to produce diaryl disulfides

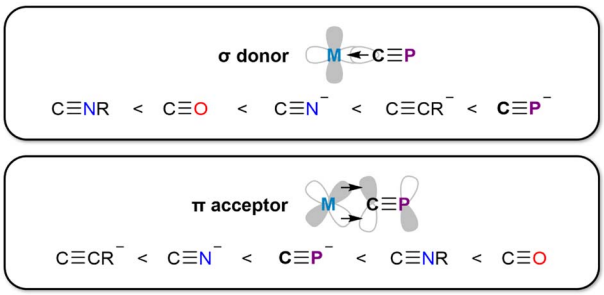
Yiming Zhao, Yan Zhou, Shanshan Lv, Han Li, Qikang Wu, Shaohuan Liu, Wanying Li, Taiyu Chen and Zheng Chen*



4627

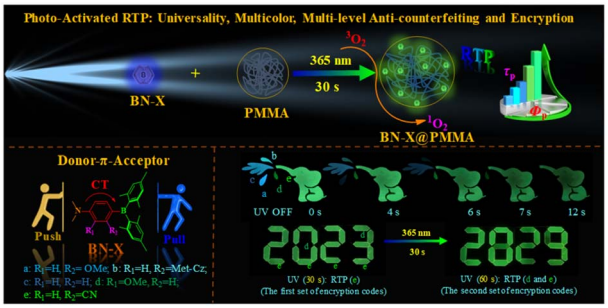
Putting cyaphide in its place: determining the donor/acceptor properties of the κ*C*-cyaphido ligand

Eric S. Yang, Emma Combey and Jose M. Goicoechea*



EDGE ARTICLES

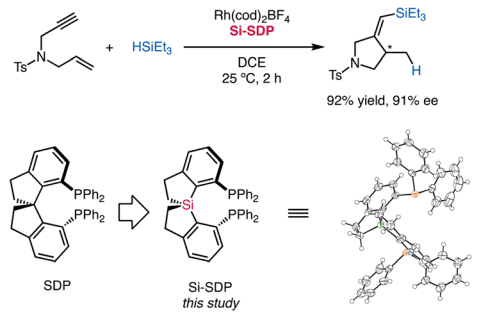
4633



Time-dependent photo-activated aminoborane room-temperature phosphorescence materials with unprecedented properties: simple, versatile, multicolor-tuneable, water resistance, optical information writing/erasing, and multilevel data encryption

Huangting Ding, Yitong Sun, Meng Tang, Jingyi Wen, Shiwen Yue, Ye Peng, Fei Li, Liyan Zheng, Suning Wang, Yonggang Shi* and Qiue Cao*

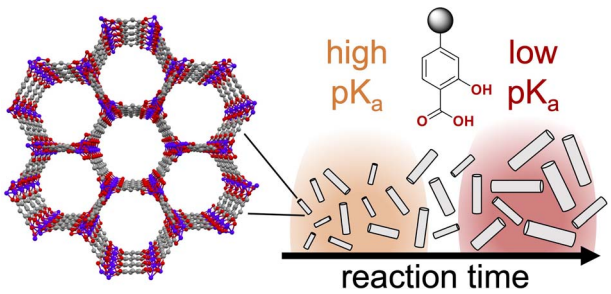
4641



Chiral spirosiladiphosphines: ligand development and applications in Rh-catalyzed asymmetric hydrosilylation/cyclization of 1,6-enynes with enhanced reactivity

Fei Hou, Minjie Liu, Tong Ru, Zequn Tan, Yingtang Ning* and Fen-Er Chen*

4647



Effect of modulator ligands on the growth of Co_2(dobdc) nanorods

Nina S. Pappas and Jarad A. Mason*