

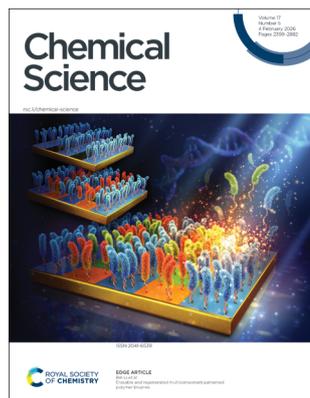
Chemical Science

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 17(5) 2399–2882 (2026)



Cover
See Bin Li *et al.*, pp. 2528–2534. Image reproduced by permission of Bin Li from *Chem. Sci.*, 2026, 17, 2528.



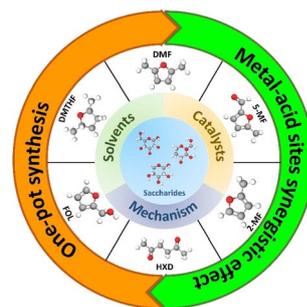
Inside cover
See Dillip Kumar Chand *et al.*, pp. 2535–2546. Image reproduced by permission of Dillip Kumar Chand from *Chem. Sci.*, 2026, 17, 2535.

REVIEWS

2413

Coupled dehydration and hydrogenation catalysis for one-pot conversion of saccharides into high-value furanic compounds

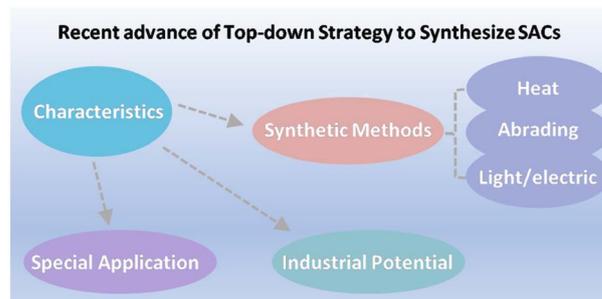
Xiaomeng Cheng, Minghua Dong, Huizhen Liu* and Buxing Han*



2427

Evolving top-down approaches for single-atom catalysis: synthesis and specialized applications

Lin Tian and Yuen Wu*



EES Catalysis

GOLD
OPEN
ACCESS

Exceptional research on energy
and environmental catalysis

Open to everyone. Impactful for all

rsc.li/EESCatalysis

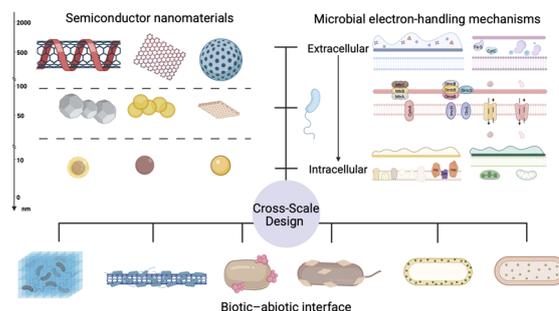
Fundamental questions
Elemental answers

REVIEWS

2438

Cross-scale design of abiotic–biotic interfaces for semi-artificial photosynthesis

Hao Wang, Jialu Li, Yuhua Feng, Donghao He, Xiaolei Fan, Bo Wang, Zhonghua Cai,* Cuiping Zeng* and Kemeng Xiao*



2477

Which halogen to choose? Comparing the effects of chlorine and fluorine as bioisosteric substituents in drug design

Connor J. E. Summerfield and Graham Pattison*

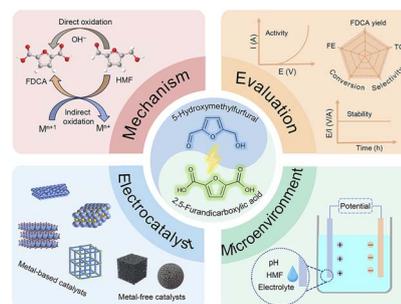
Molecular Matched Pair Analysis
How do fluorine and chlorine lead to similarities and differences in the properties of drugs?

- Binding Constants
- Bioavailability
- log D
- Toxicology
- Solubility
- Metabolism

2506

Electrosynthesis of 2,5-furandicarboxylic acid from 5-hydroxymethylfurfural: mechanisms, advanced catalysts, and reaction microenvironments

Jiacheng Zhang, Siping Wang, Jiaqing Liu, Jiayi Chen, Guigang Zhang, Yidong Hou, Meifang Zheng,* Sibowang* and Xue Feng Lu*

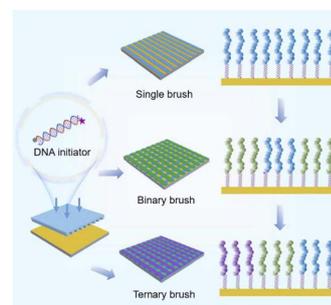


EDGE ARTICLES

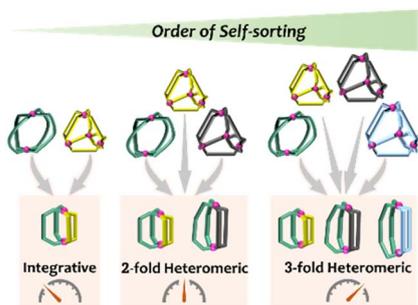
2528

Erasable and regenerated multicomponent patterned polymer brushes

Yuhong Cui, Baoluo He, Qian Ye, Feng Zhou and Bin Li*



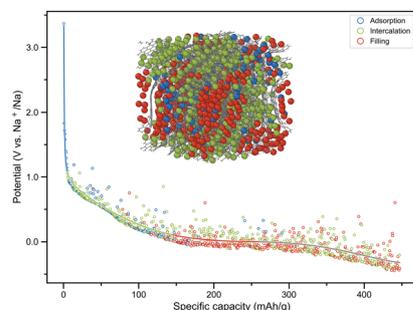
2535



Conformational adaptability enabled higher-order self-sorting processes in coordination cages

Minaz Parbin, Vellaiyadevan Sivalingam, Ramkumar Venkatachalam and Dillip Kumar Chand*

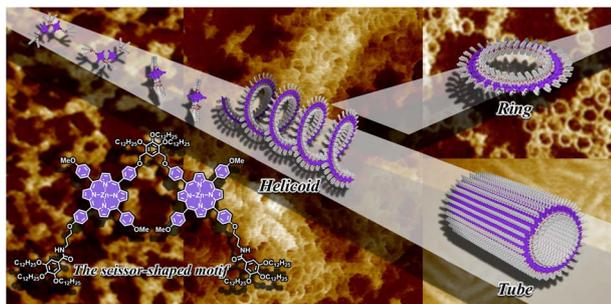
2547



Unveiling sodium storage mechanisms in hard carbon *via* machine learning-driven simulations integrated with accurate site occupation identification

Zhaoming Wang, Guanghui Shi, Guanghui Wang, Man Wang, Feng Ding* and Xiao Wang*

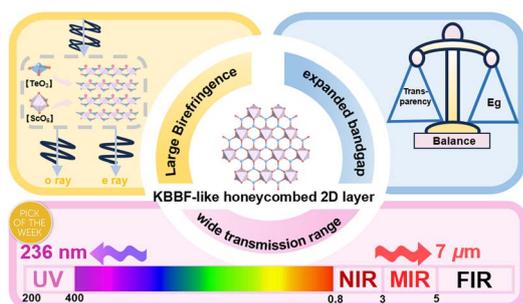
2559



Curvature-emergent supramolecular polymerization of a porphyrin dyad with a scissor-shaped motif

Ryuichi Kawai, Soichiro Ogi, Hiroki Hanayama, Ryo Kudo and Shiki Yagai*

2566



Tailoring ordered structures with distorted $[\text{TeO}_3]$ and aligned $[\text{ScO}_6]$ motifs for balanced nonlinear optical properties in rare-earth tellurate crystals

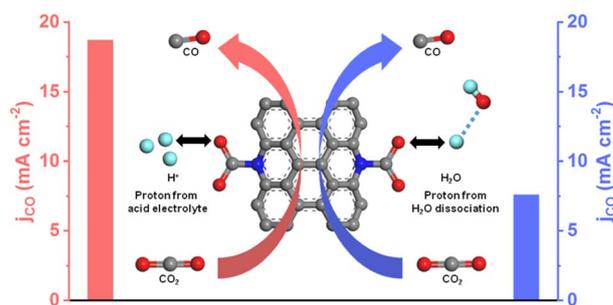
Xiaoxu Wang, Tinghui Zhang, Huijian Zhao, Ning Jia,* Hongjun Liu, Ning Ye, Zhanguai Hu and Conggang Li*



2574

Unveiling hydrogen-source-dominated CO₂ electroreduction activity on nitrogen-doped carbon nanotubes

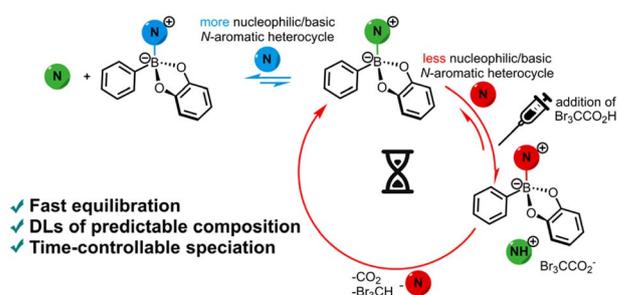
Yifan Jiang, Jingyu Wang, Jiaqi Xiang, Haichuan He, Liren Xiong, Min Zhang, Mustapha Abdulhadi, Liu Deng,* Shanyong Chen* and You-Nian Liu*



2582

The dynamic chemistry of the boron–nitrogen bond

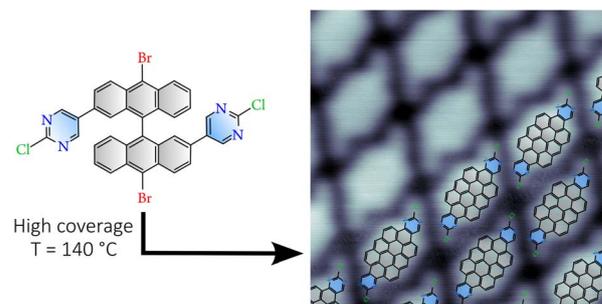
Federico Fratello, * Giorgio Capocasa, * Martina De Angelis, Greta Sandri, Osvaldo Lanzalunga, Chiara Massera* and Stefano Di Stefano*



2592

On-surface synthesis of nitrogen-doped nanographenes assisted by self-assembly

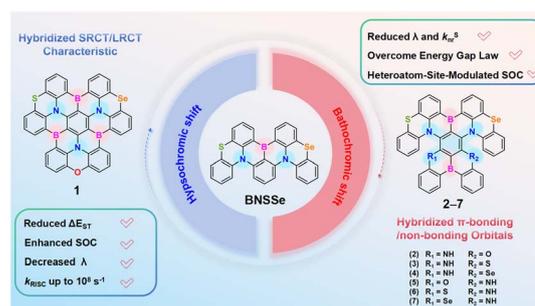
Maria Tenorio, Cesar Moreno,* Jesús Castro-Esteban, Manuel Vilas-Varela, Diego Peña* and Aitor Mugarza*



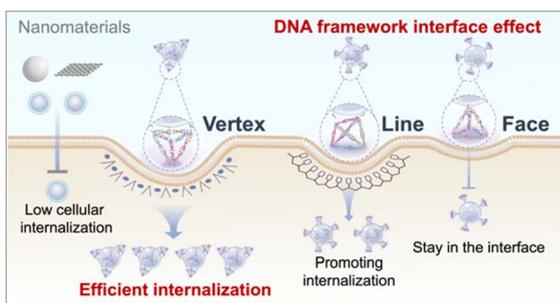
2599

Regulation of heteroatom positioning in multiple resonance thermally activated delayed fluorescence materials: performance optimization for blue/red emission

Lifang Yin, Yi Zhao, Qiang Gao, Yajun Yin, Tengfei He, Yufei Yang, Aimin Ren, Tongshun Wu, Hui Li and Luyi Zou*



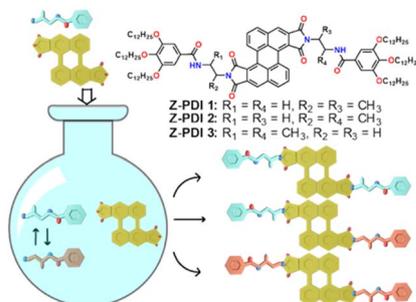
2616



Orientation of surface-immobilized DNA tetrahedron nanostructures dictates cell–material interaction

Haozhen Yu, Haoyue Lv, Ziyi Zhao, Siyi Duan, Xiaoman Duan and Biwu Liu*

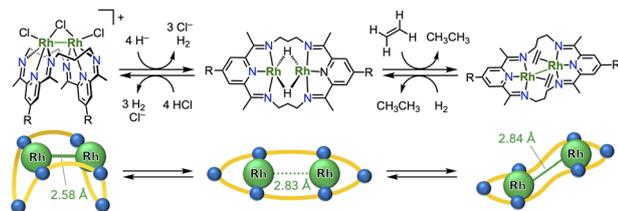
2627



Intramolecular transamidation enables one-pot synthesis of three chiral, Z-shaped perilenediimides for null-type supramolecular polymer formation

Alfonso J. Schwalb, Adrián Carreño, Fátima García and Luis Sánchez*

2637



Low-oxidation state dirhodium complex produced by four-electron reduction of dirhodium(II) complex supported by a flexible macrocyclic ligand

Liping Yan, Takumi Moriyama, Yutaro Akita, Satoshi Muratsugu, Mizuki Tada, Makoto Yamashita* and Yuma Morimoto*

2646



Triple-helical aggregates of copper(I) cyclic trinuclear complexes for circularly polarized luminescence

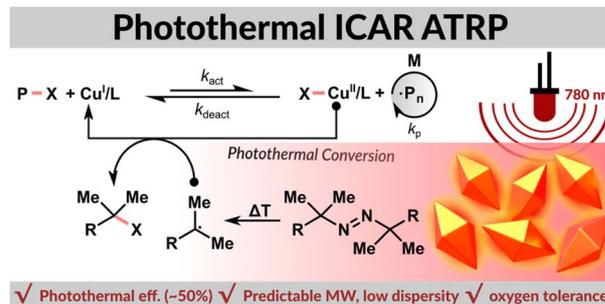
Guo-Quan Huang, Hu Yang, Ri-Qin Xia, Kun Wu, Yong-Liang Huang, De-Bo Hao, Shun-Bo Li, Weigang Lu,* Ji Zheng,* Xiao-Ping Zhou* and Dan Li*



2654

Near-infrared-driven photothermal atom transfer radical polymerization

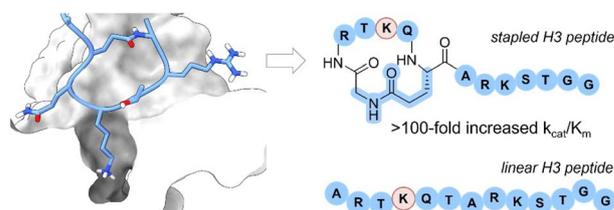
Martyna Cybularczyk-Cecotka, Filip Bandalewicz, Wiktor Lewandowski* and Grzegorz Szczepaniak*



2664

Stapled histone H3 tails are super-substrates for lysine methyltransferase SETD7

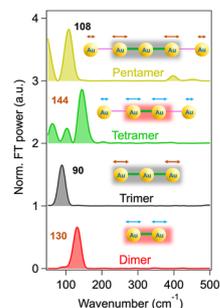
Nurgül Bilgin, Laust Moesgaard, Jacob Kongsted and Jasmin Mecinović*



2676

Localization of the Au–Au bond strength in the triplet excited state of the $[\text{Au}(\text{CN})_2]^-$ oligomers revealed by ultrafast time-domain Raman spectroscopy

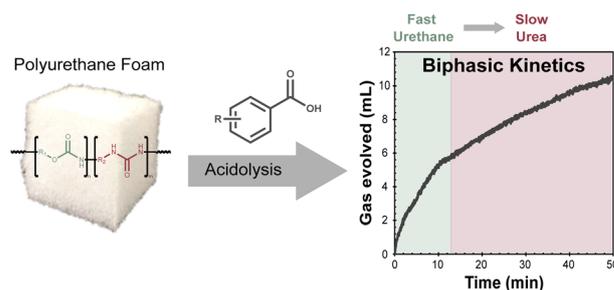
Li Liu, Hikaru Kuramochi, Munetaka Iwamura, Koichi Nozaki and Tahei Tahara*



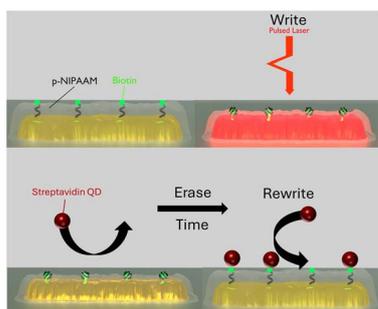
2685

Differentiating urethane and urea bond activation in polyurethane foam acidolysis

Madeleine Davis, Kelsey Richardson, Zach Westman, Alan L. Stottlmyer, Christopher Letko, Nasim Hooshyar, Vojtech Vlcek,* Phillip Christopher* and Mahdi M. Abu-Omar*



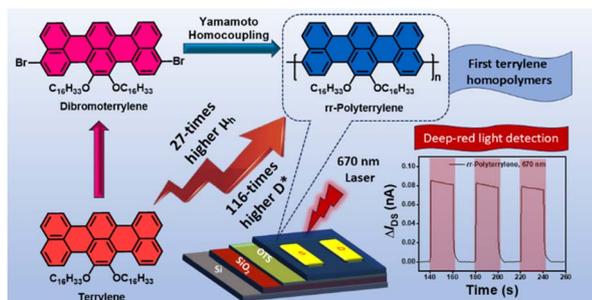
2694



Optical write–erase chemical memory state in plasmonic nanoarrays

Victor Tabouillot,* Muhammad Murad, Dylan Wilkinson, Rahul Kumar, Paula L. Laguna, Maryam Hajji, Affar S. Karimullah, Nikolaj Gadegaard, Aurélie Malfait, Patrice Woisel, Graeme Cooke and Malcolm Kadodwala*

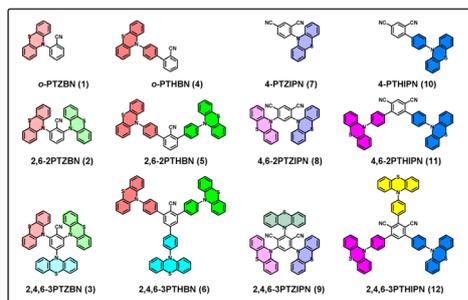
2703



Polyterrylenes: synthesis and regioregularity effect on p-type charge transport and deep-red light photodetection in OFETs

Chitrak Ghosh, Minji Chung, Hayeong Park, Aniket Jitendra Talreja, Ullrich Scherf, Joon Hak Oh* and Suman Kalyan Samanta*

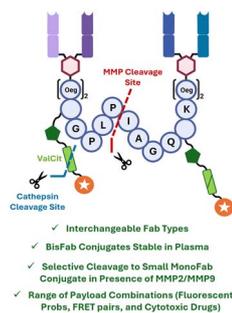
2712



Regulation and mechanisms of full-visible-spectrum emission in solid and liquid states for D-π-A cyanobenzene–phenothiazine fluorescent molecules

Wen-Hao Li, Meng-Yao Niu, Yi-Yun Zhu, Man Zhang, Hao-Yu Gao, Xin-Chao Zhang, Bo Yang,* Donghui Wei* and Xuenian Chen*

2722



MMP-cleavable linker platform for tumour-responsive homo- and heterobivalent antibody–drug conjugates

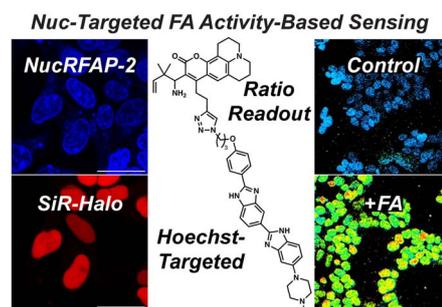
Andrew J. Counsell, Stephen J. Walsh, Nicola Ashman, Mahri Park, Friederike M. Dannheim, Thomas A. King, Thomas Wharton, Jason S. Carroll and David R. Spring*



2732

A nuclear-targeted activity-based sensing probe for ratiometric imaging of formaldehyde reveals endogenous epigenetic contributors to the nuclear formaldehyde pool

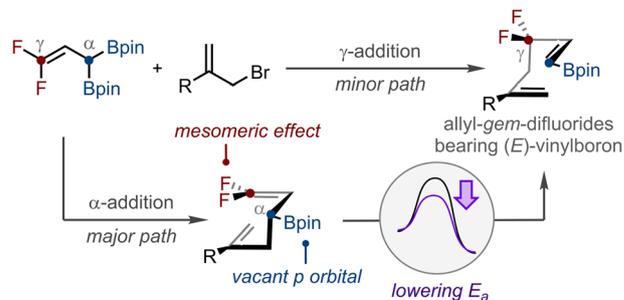
Logan Tenney, Kuo-Kuang Wen, Seong-Su Han, Yatin M. Vyas and Christopher J. Chang*



2741

Access to allyl-gem-difluorides via allylation and Cope rearrangement

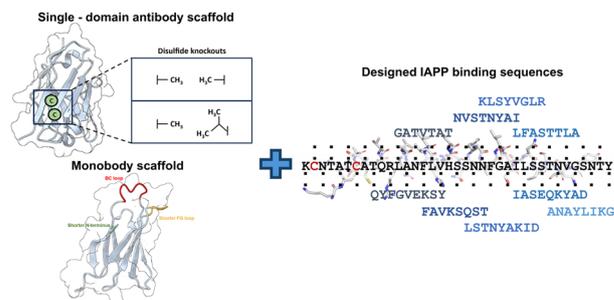
Haeun Kim, Seungcheol Han, Yunhui Jang, Yujin Jung and Seung Hwan Cho*



2748

Single-molecule imaging of small aggregates of IAPP in type 2 diabetes serum with rationally-designed antibody-like scaffolds

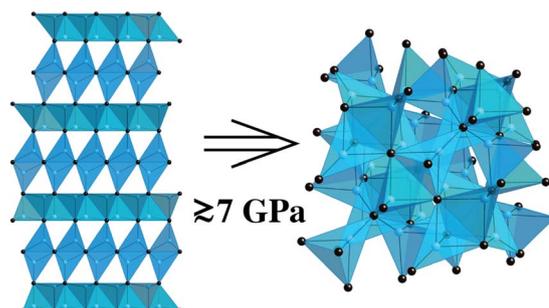
Jiacheng Lin, Yu P. Zhang, Sean Chia, David Klenerman,* Pietro Sormanni* and Michele Vendruscolo*



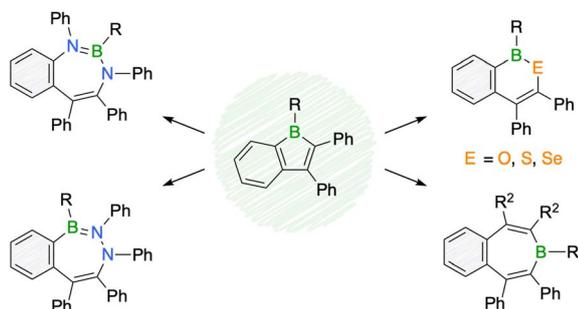
2767

Spinel-type Al_4C_3 attainable above 7 GPa and more high-pressure phases of Al_4C_3

Mitchell Falgout and Peter Kröll*



2772

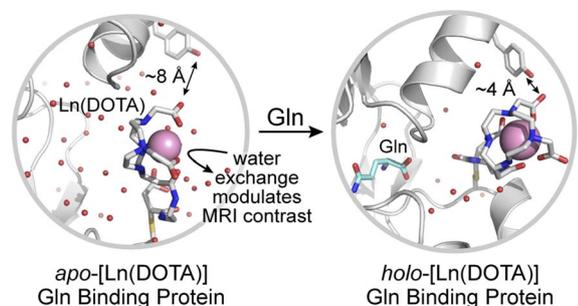


Boraindenes as versatile precursors to benzannulated boron heterocycles

Nele Wieprecht, Ivo Krummenacher, Leonie Wüst, Maximilian Michel, Marco Neder, Andreas Häfner, Jordan Karg and Holger Braunschweig*

$E = O, S, Se$

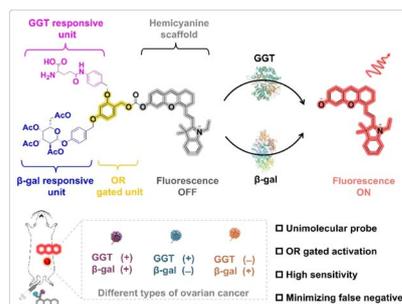
2781



Development of a glutamine-responsive MRI contrast agent

Charles A. Wilson, Austin T. Bruchs, Saman Fatima, David G. Boggs, Jennifer Bridwell-Rabb and Lisa Olshansky*

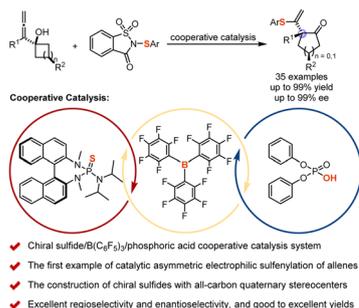
2791



A unimolecular near-infrared fluorescent probe for *in vivo* imaging of enzymes with minimized false-negative signals

Jinliang Han, Mingwang Yang,* Chengyuan Lv, Kang Li, Jiangli Fan* and Xiaojun Peng

2802



Chiral Lewis base/Lewis acid/Brønsted acid cooperative catalysis enabled regio- and enantioselective electrophilic sulfenylation/semipinacol rearrangement of allenols

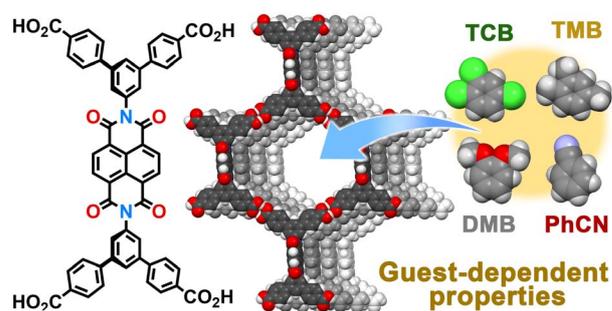
Zheng-Wei Wei, Qing-Yun Cai, Li-Miao Yang, Yu-Xuan Huo, Ze-Long Li, Xue-Qing Gong* and Zhi-Min Chen*



2811

A hydrogen-bonded organic framework possessing one-dimensional wide channels surrounded by the naphthalenediimide plane

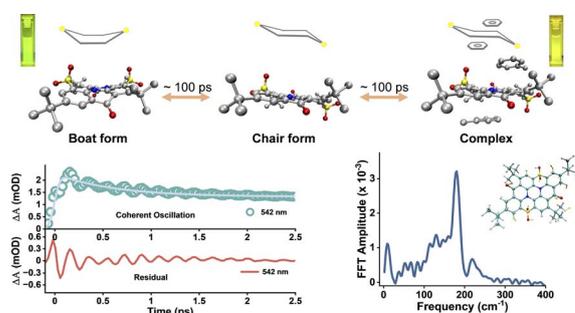
Yuzuki Murata, Taito Hashimoto, Ryusei Oketani, Miki Naruoka, Rajendra Prasad Paitandi, Norimitsu Tohnai, Shu Seki and Ichiro Hisaki*



2818

Dual conformational emission and vibrational coherence in a sulfone-embedded narrowband emitter

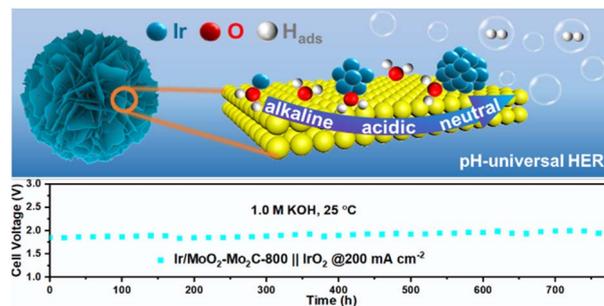
Simin Jiang, Yanmei He,* Guo-Xi Yang, Tönu Pullerits and Shi-Jian Su*



2827

Exposed high-concentration Ir active sites and metal-support interaction endow Ir/MoO₂-Mo₂C hybrids with high atom utilization and stability for pH-universal hydrogen evolution reaction

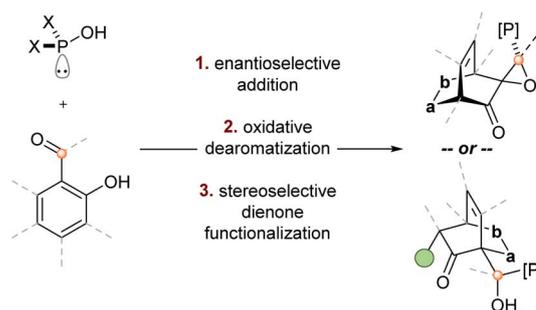
Yuehuan Zhang and Qiang Yuan*



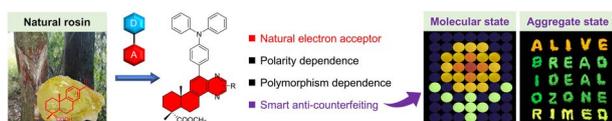
2837

Catalytic asymmetric P^(III)-additions to salicylaldehydes enable divergent stereoselective dearomatizations of phenols

Aidan J. Clarkson, Kimberly A. Alley, Bryn K. Werley, Jacob G. Robins, Shubin Liu and Jeffrey S. Johnson*



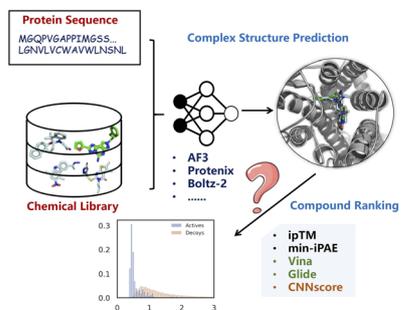
2847



From nature-inspired electron acceptors to BioAIE materials with polarity- and polymorphism-dependence for anti-counterfeiting

Dongmei Wang, Xiao Chen, Yuting Lin, Lulu Wu, Zhichen Zhao, Xu Xu, Shilong Yang, Jianyu Zhang,* Wen-Jin Wang, Zheng Zhao, Shifa Wang,* Ben Zhong Tang* and Xu-Min Cai*

2858



Unlocking the application potential of AlphaFold3-like approaches in virtual screening

Chao Shen,* Xujun Zhang, Shukai Gu, Odin Zhang, Qinghan Wang, Gang Du, Yihao Zhao, Linlong Jiang, Peichen Pan, Yu Kang, Qingwei Zhao, Chang-Yu Hsieh and Tingjun Hou*

