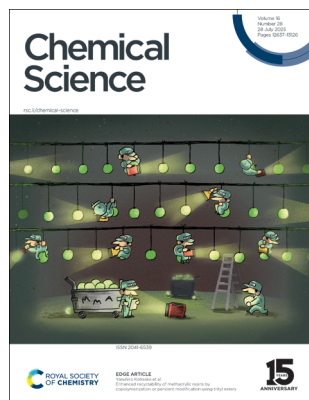


IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 16(28) 12637–13126 (2025)



Cover
See Yasuhiro Kohsaka *et al.*,
pp. 12804–12811. Image
reproduced by permission
of Nanami Chiba from
Chem. Sci., 2025, **16**, 12804.



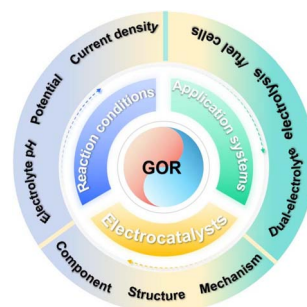
Inside cover
See Gaolian Xu, Hongchen Gu,
Hong Xu *et al.*,
pp. 12812–12822. Image
reproduced by permission of
Hao Yang and Hong Xu from
Chem. Sci., 2025, **16**, 12812.

PERSPECTIVES

12651

Hybrid dual-electrolyte electrochemical cells for glycerol oxidation upgradation

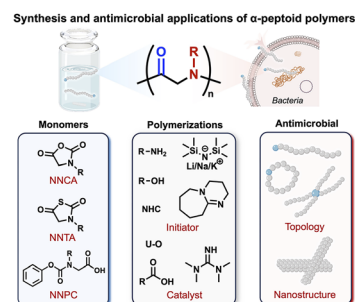
Genxiang Wang, Junxiang Chen, Fen Qiao,
Junfeng Wang* and Zhenhai Wen*



12679

Synthesis and antimicrobial applications of α -peptoid polymers

Jiayang Xie, Weilong Hu, Xi Feng, Zixin Liu, Min Zhou*
and Runhui Liu*



Environmental Science: Atmospheres

GOLD
OPEN
ACCESS

Connecting communities
and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers

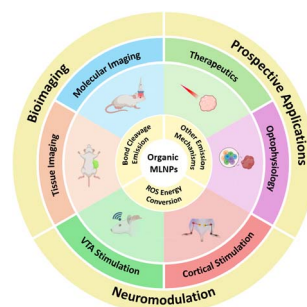


REVIEWS

12702

Organic mechanoluminescent nanoparticles for biomedical applications

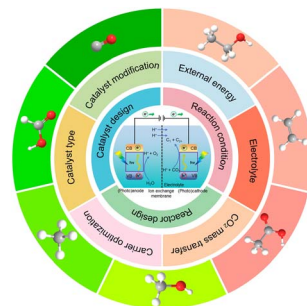
Christina Gu, Xiangping Liu, Brian Song, Wenliang Wang, Weilong He and Huiliang Wang*



12718

Toward high-selectivity CO₂ photoelectroreduction: mechanistic foundations, recent advances and challenges

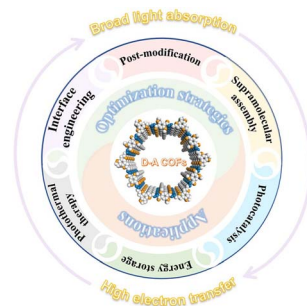
Guosheng Zhou, Zhenzhen Wang, Junjie Gong, Shijie Shen* and Wenwu Zhong*



12768

Donor–acceptor type covalent organic frameworks: design, optimization strategies and applications

Haiyang Liu, Shanshan Zhu, Yongfeng Zhi,* Huijuan Yue and Xiaoming Liu*

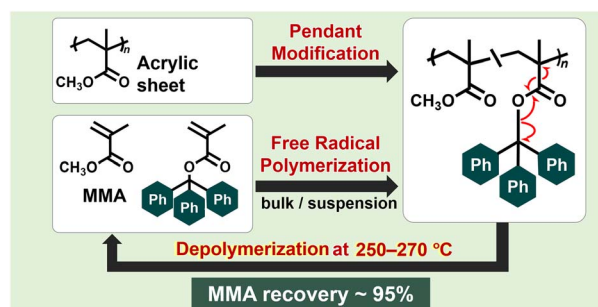


EDGE ARTICLES

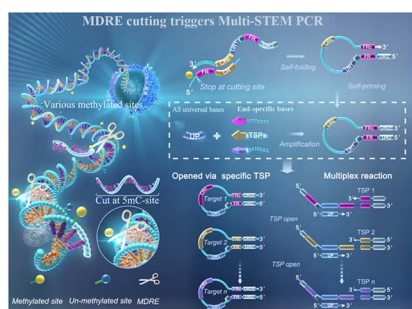
12804

Enhanced recyclability of methacrylic resins by copolymerization or pendant modification using trityl esters

Yota Chiba, Shoji Hirabayashi and Yasuhiro Kohsaka*



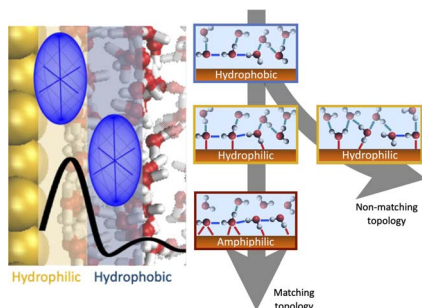
12812



Multi-STEM MePCR: a bisulfite-free, multiplex, highly sensitive and highly specific assay to measure DNA methylation

Hao Yang, Jiani Qiu, Yaping Xu, Wei Ren, LinQing Zhen, Gaolian Xu,^{*} Hongchen Gu^{*} and Hong Xu^{*}

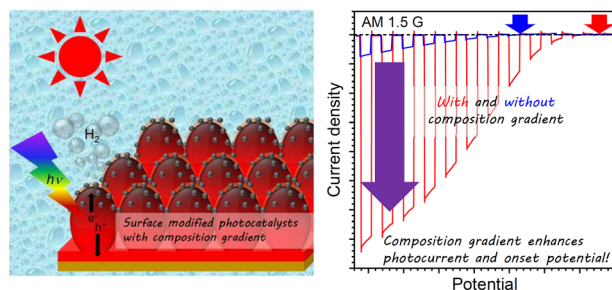
12823



On the origin of the large hydrophobic solvation driving forces at metal- and oxide-water interfaces

Mohammed Bin Jassar^{*} and Simone Pezzotti^{*}

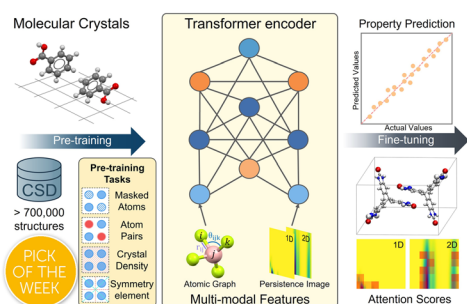
12833



A novel particulate photocathode composed of CdTe–ZnTe solid solutions with a composition gradient for solar hydrogen evolution from water

Lionel S. Veiga, Mamiko Nakabayashi, Takenori Fujii, Masakazu Sugiyama and Tsutomu Minegishi^{*}

12844



A universal foundation model for transfer learning in molecular crystals

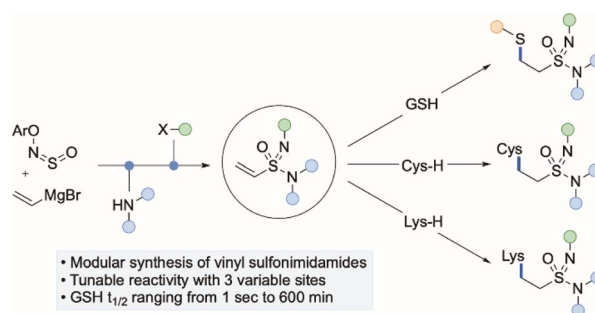
Minggao Feng, Chengxi Zhao, Graeme M. Day,^{*} Xenophon Evangelopoulos^{*} and Andrew I. Cooper^{*}



12860

Synthesis and functionalization of vinyl sulfonimidamides and their potential as electrophilic warheads

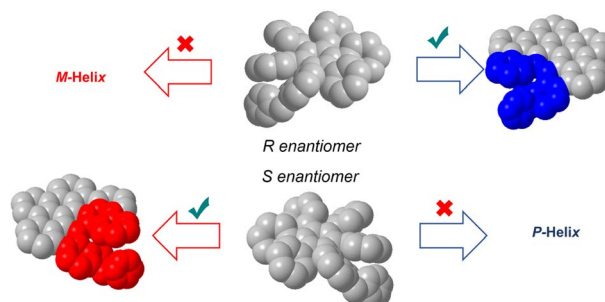
Yu Tung Wong, Charles Bell and Michael C. Willis*



12867

A diastereoselective Scholl reaction: point-to-helical chirality transfer in molecular nanographenes

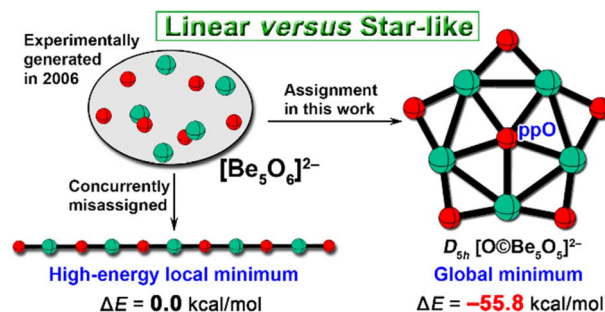
Sergio Marcos López, Manuel Buendia, Israel Fernández,* Salvatore Filippone* and Nazario Martín*



12873

A planar pentacoordinate oxygen in the experimentally observed $[\text{Be}_5\text{O}_6]^{2-}$ dianion

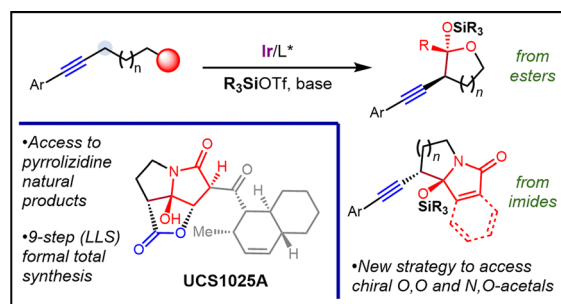
Rui Sun, Yang Yang, Xin Wu, Hua-Jin Zhai, Caixia Yuan* and Yan-Bo Wu*



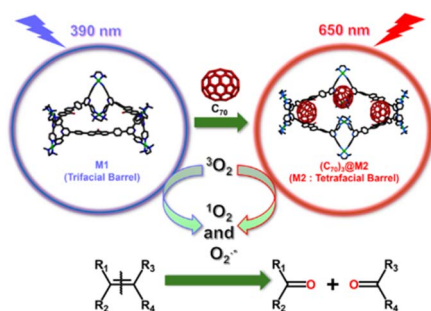
12879

Intramolecular asymmetric propargylation of esters and imides: C–H functionalisation enables stereocontrolled access to UCS1025A

James C. Corcoran, Jin Zhu, Mason A. Semenic, Anna L. Welser and Yi-Ming Wang*



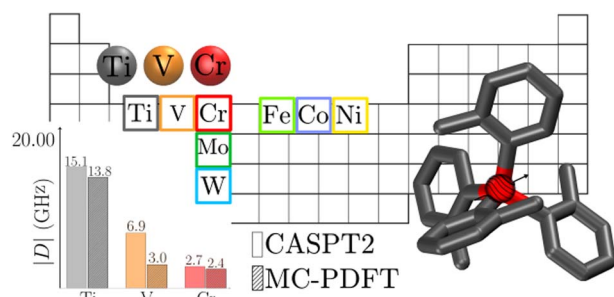
12885



Transformation of a Pd₆ trifacial barrel to a Pd₈ tetrafacial barrel by C₇₀ as guest and oxidative photolysis of alkenes using the C₇₀ encapsulated barrel under red light

Ranit Banerjee, Monojit Roy, Medha Aggarwal, Shyamali Maji, Debashis Adhikari* and Partha Sarathi Mukherjee*

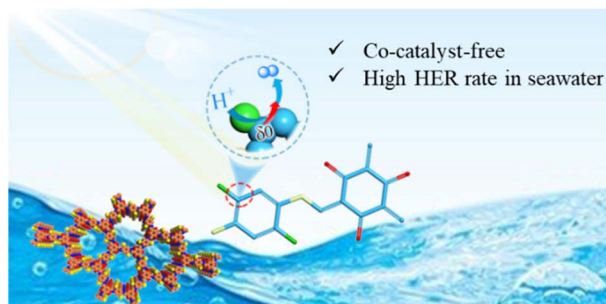
12896



Designing molecular qubits: computational insights into first-row and group 6 transition metal complexes

Arturo Sauza-de la Vega, Andrea Darù, Stephanie Nofz and Laura Gagliardi*

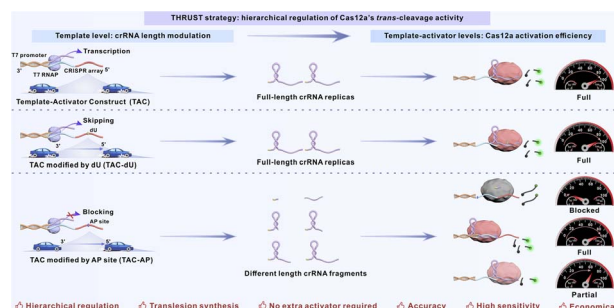
12906



Engineering charge transfer by tethering halogens to covalent organic frameworks for photocatalytic sacrificial hydrogen evolution

Fangpei Ma, Xiao Chi, Ying Wen, Qihong Yue, Tao Chen, Xiaojiang Yu, Xiaoling Liu, Yu Zhou* and Jun Wang*

12917



THRUST: translesion synthesis-driven hierarchical regulation using a template-activator construct for Cas12a activity

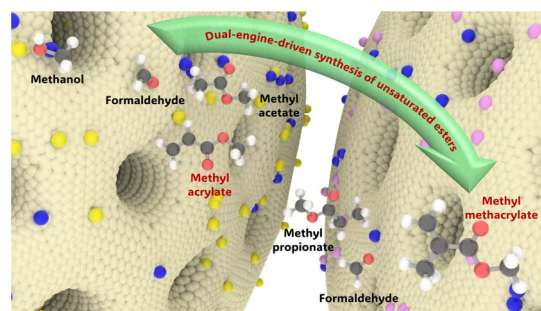
Lulu Qin, Wen-Jin Wang, Xinyi Xia, Tongshan Zuo, Yilin Cai, Guanhong Xu, Fangdi Wei, Suling Wang, Qin Hu, Zheng Zhao, Fan Zhang,* Ben Zhong Tang* and Yao Cen*



12927

Dual-engine-driven synthesis of unsaturated esters over channel-expanding Cu–Cs catalysts

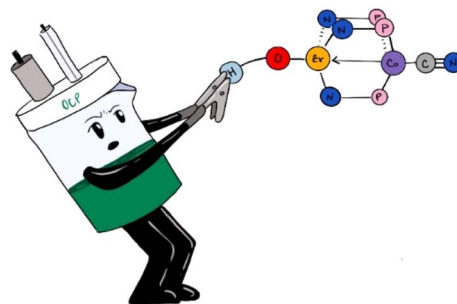
Jiaqi Fan, Lishu Shao,* Weizhe Gao, Yitong Han, Wenjie Xiang, Hao Huang, Zhihao Liu, Chufeng Liu, Bo Wang, Kangzhou Wang, Guangbo Liu, Jiancai Sui, Qiang Liu, Tao Li, Tao Xing, Shuhei Yasuda, Zhixin Yu,* Guohui Yang,* Peipei Zhang* and Noritatsu Tsubaki*



12941

Heterobimetallic multi-site concerted proton electron transfer (MS-CPET) promotes coordination-induced O–H bond weakening

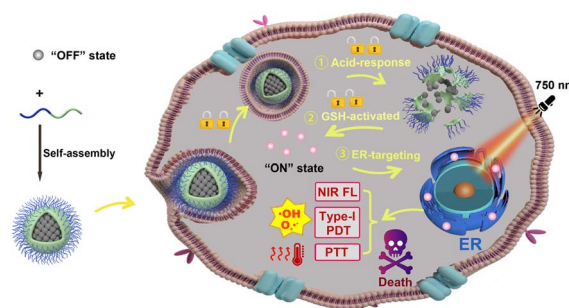
Julia Feresin, Brett A. Barden, Jayden A. Reyes, Preshit C. Abhyankar, Seth M. Barrett* and Christine M. Thomas*



12947

“Dual lock-and-key” triggered and endoplasmic reticulum targeting nanophotosensitizers for activatable Type-I photodynamic and photothermal therapies

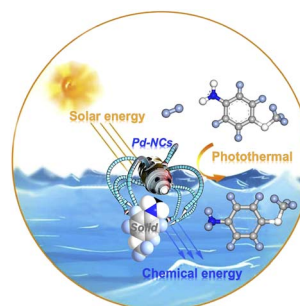
Rumeng Zhan, Weijie Zhou, Hongyu Ma, Menghui Zou, Mingming Zhang,* Weian Zhang* and Jia Tian*



12956

Photoactivated solid-state self-assembly: a mechanochemistry-free route to high-purity aromatic amine crystals

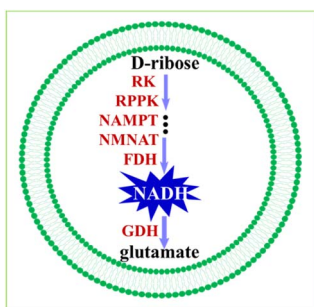
Xia Wang, Ming-Hui Su, Jia-Yong Zhou, Shao-Shuai Liu, Jin-Wei Yuan, Liang-Ru Yang, Meng Yan, Ya-Xin Li and Yun-Tao Xia*



- Sunlight Powered
- Spontaneous Solid-State Reactions
- No “Dispersant”
- No External Forces
- High Reactivity and Selectivity
- Mild Reactions Conditions
- Broad Substrate Scope
- TOF up to 139,169 h⁻¹
- Gram-Scale up to 15 g



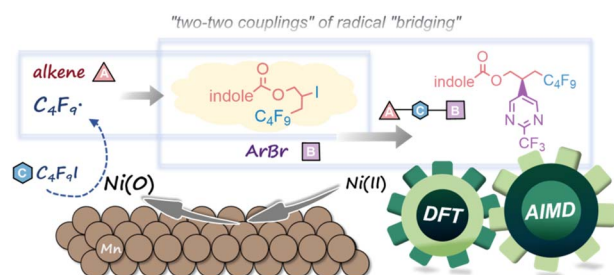
12969



Construction of the reduced nicotinamide adenine dinucleotide salvage pathway in artificial cells and its application in amino acid synthesis

Yiming Liu, Shanshan Du, Xiangxiang Zhang, Chao Li, Shubin Li,* Wenxia Xu, Jingjing Zhao,* Wei Mu* and Xiaojun Han*

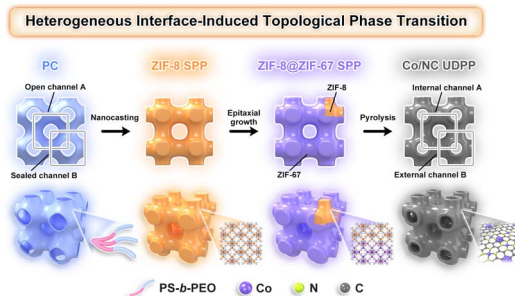
12982



A nickel-catalysed radical mechanism by three-component dimensionality reduction strategies: a theoretical study

Lin-Yan Bao, Rong-Wan Gao, Bo Zhu,* Zhong-Min Su* and Wei Guan*

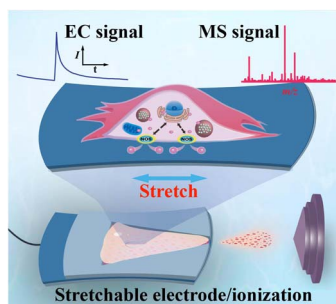
12994



Nanoarchitectonics of cobalt/nitrogen-doped carbon with an unbalanced double primitive bicontinuous motif for efficient electrocatalysis

Bin Zhao, Bohan Liu, Ji Han, Ruigang Sun, Haidong Xu, Yuanbo Sun, Guangrui Chen, Zhaohui Shi, Chenxu Liu, Yanjing Gao, Mingjie Zhang, Song Lin Zhang, Yusuke Yamauchi and Buyuan Guan*

13004



Stretchable electrode enabled electrochemical mass spectrometry for *in situ* and complementary analysis of cellular mechanotransduction

Haotian Wang, Jing Yan, Jiamei Lin, Caiying Zhang, Xinglei Zhang, Rui Su,* Yan-Ling Liu* and Jiaquan Xu*

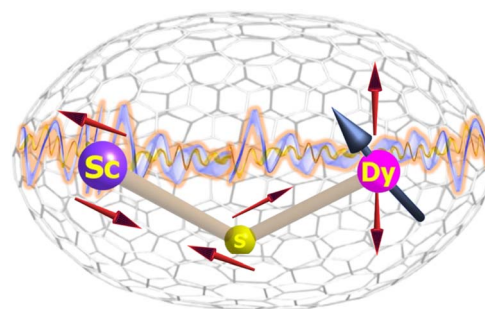


EDGE ARTICLES

13012

The mechanism of spin-phonon relaxation in endohedral metallofullerene single molecule magnets

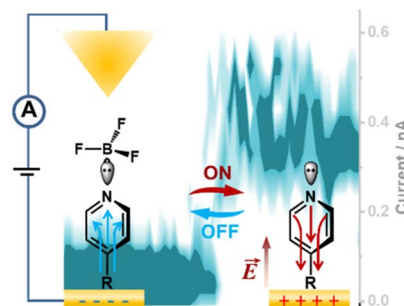
Tanu Sharma, Rupesh Kumar Tiwari, Sourav Dey, Lorenzo A. Mariano, Alessandro Lunghi* and Gopalan Rajaraman*



13022

Single-molecule contact switching *via* electro-inductive effects

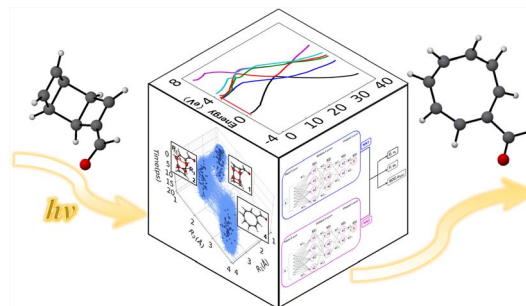
Ya-Li Zhang, Tian-Hang Bai, Jing-Tao Ye, Li-Na Luo, Qiang Wan,* Ju-Fang Zheng, Yong Shao, Ya-Hao Wang* and Xiao-Shun Zhou*



13031

Machine learning photodynamics reveal intersystem-crossing-driven ladderene ring opening

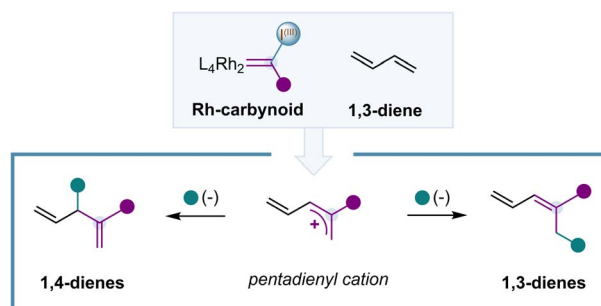
Zhendong Li, Haijun Fu, Steven A. Lopez* and Jingbai Li*



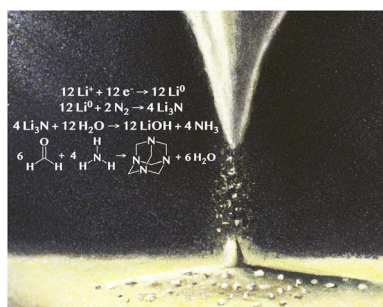
13042

Rh-catalysed single-carbon insertion to 1,3-dienes

Pau Sarró, Norman Díaz, Josep Esteve Guasch, Wei Jie Teo and Marcos G. Suero*



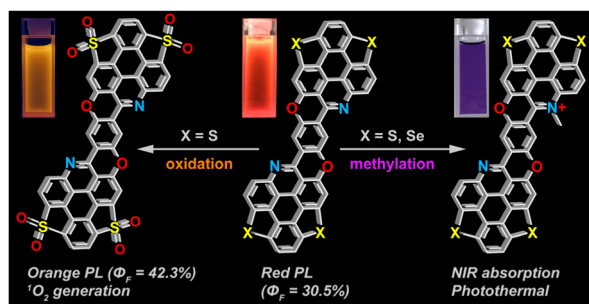
13048



Nitrogen fixation using metallic lithium nanoparticles formed by electrospray deposition

Dylan T. Holden, Myles Quinn Edwards, Zhongxia Shang and R. Graham Cooks*

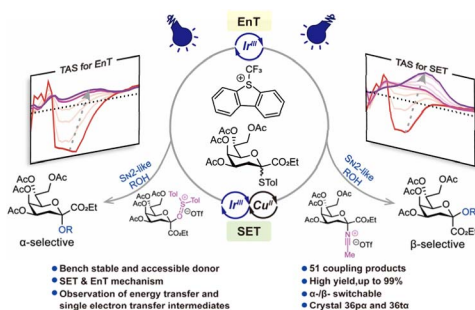
13057



Valence state engineering in multi-heteroatom-doped PAHs: a strategy for tunable photophysical properties and phototheranostic potentials

Yao Ma, Dongxu Li, Xin Chen, Xinqiang Hua, Cheng-Shan Yuan, Jianguo Wang,* Zitong Liu, Hao-Li Zhang and Xiangfeng Shao*

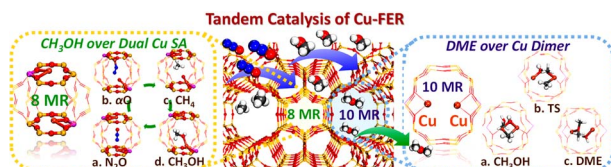
13070



Single electron/energy transfer photocatalysis: α/β -switchable synthesis of 3-deoxy-D-manno-oct-2-ulosonic acid O-glycosides

Jing-dong Zhang, Jia-long Jie,* Shu-yi Yan, Hui Zhang, Jia-meng Chen, Jiang-cheng Wu, Lu-yang Qin, Guang-jian Liu, Hong-mei Su and Guo-wen Xing*

13082



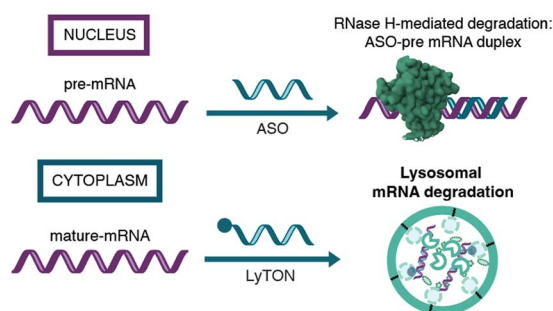
2D spatial structure-favored, tandem catalysis-boosted direct transformation of methane to methanol over Cu-FER

Ning Liu, Tingting Zhang, Chengna Dai, Ruinian Xu, Gangqiang Yu, Ning Wang and Biaohua Chen*

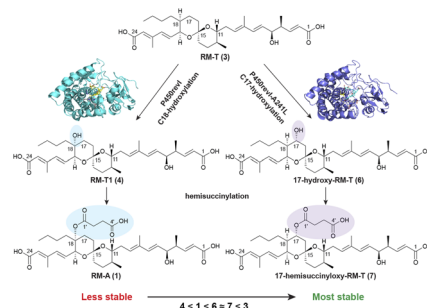


Disha Kashyap, Thomas A. Milne* and Michael J. Booth*

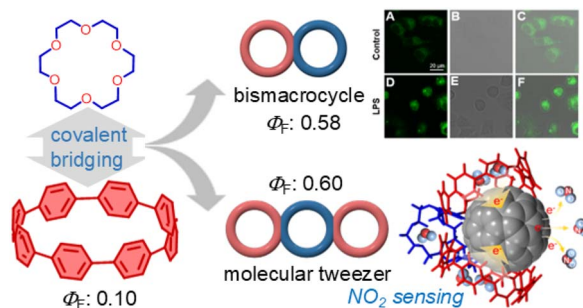
Disha Kashyap, Thomas A. Milne* and Michael J. Booth*



Ya Fen Yong, Song Liu, Katsuyuki Sakai, Keisuke Fujiyama,
Hiroshi Takagi, Yushi Futamura, Takeshi Shimizu,
Hiroyuki Osada, Eugene Boon Beng Ong
and Shunji Takahashi*



Yaning Hu, Tong Li, Taotao Su, Wudi Shi, Yabing Yu,
Beibei Li, Meng-Hua Li, Sheng Zhang, Yuan-Qing Xu,
Qi Liu,* Di Wu* and Youzhi Xu*



CORRECTIONS

Correction: A planar pentacoordinate oxygen in the experimentally observed $[\text{Be}_5\text{O}_6]^{2-}$ dianion

Rui Sun, Yang Yang, Xin Wu, Hua-Jin Zhai, Caixia Yuan* and Yan-Bo Wu*

CORRECTIONS

13123

Correction: Unveiling the switching mechanism of robust tetrazine-based memristive nociceptors via a spectroelectrochemical approach

JiYu Zhao, Kun Liu, Wei Zeng, Zhuo Chen, Yifan Zheng, Zherui Zhao, Wen-Min Zhong, Su-Ting Han, Guanglong Ding,^{*} Ye Zhou^{*} and Xiaojun Peng^{*}

