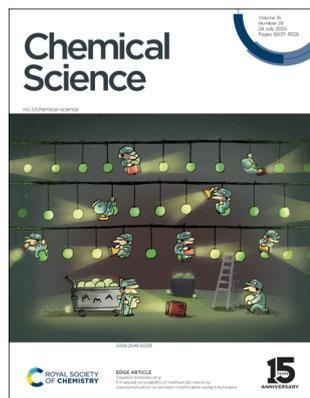


## IN THIS ISSUE

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.



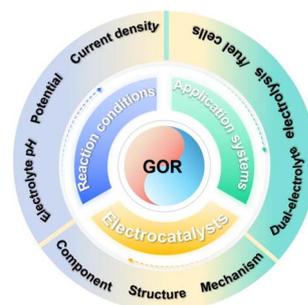
**Inside cover**  
See Gaolian Xu, Hongchen Gu, Hong Xu *et al.*, pp. 12812–12822. Image reproduced by permission of Hao Yang and Hong Xu from *Chem. Sci.*, 2025, **16**, 12812.

## PERSPECTIVES

12651

### Hybrid dual-electrolyte electrochemical cells for glycerol oxidation upgradation

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

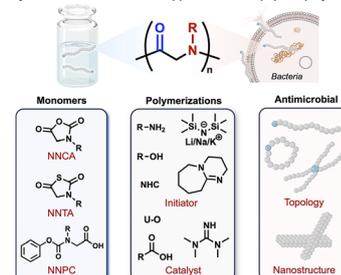


12679

### Synthesis and antimicrobial applications of $\alpha$ -peptoid polymers

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

Synthesis and antimicrobial applications of  $\alpha$ -peptoid polymers



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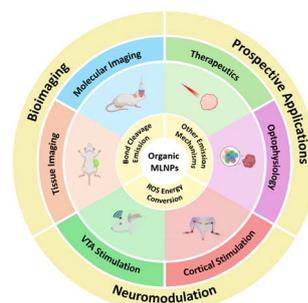


## REVIEWS

12702

**Organic mechanoluminescent nanoparticles for biomedical applications**

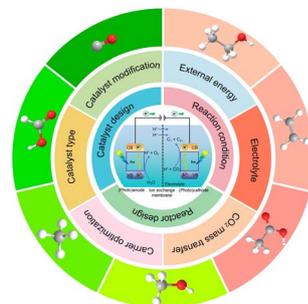
Christina Gu, Xiangping Liu, Brian Song, Wenliang Wang, Weilong He and Huiliang Wang\*



12718

**Toward high-selectivity CO<sub>2</sub> photoelectroreduction: mechanistic foundations, recent advances and challenges**

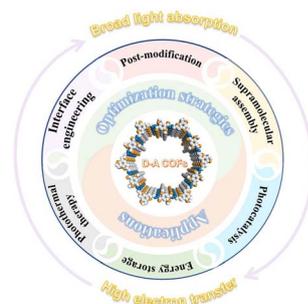
Guosheng Zhou, Zhenzhen Wang, Junjie Gong, Shijie Shen\* and Wenwu Zhong\*



12768

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

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

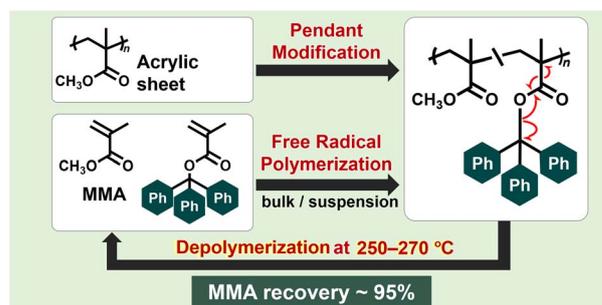


## EDGE ARTICLES

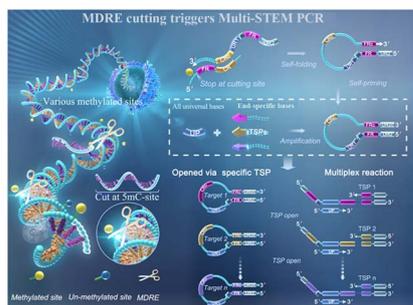
12804

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

Yota Chiba, Shoji Hirabayashi and Yasuhiro Kohsaka\*



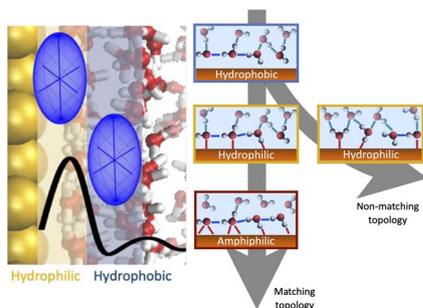
12812



### 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,<sup>\*</sup> Hongchen Gu<sup>\*</sup> and Hong Xu<sup>\*</sup>

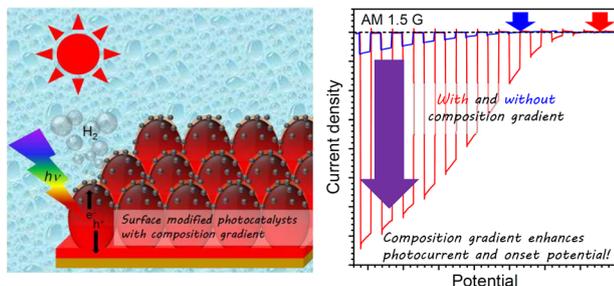
12823



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

Mohammed Bin Jassar<sup>\*</sup> and Simone Pezzotti<sup>\*</sup>

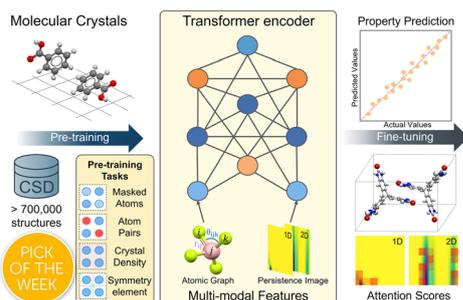
12833



### 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<sup>\*</sup>

12844



### A universal foundation model for transfer learning in molecular crystals

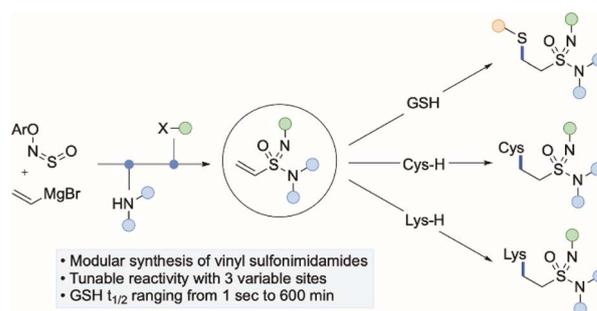
Minggao Feng, Chengxi Zhao, Graeme M. Day,<sup>\*</sup> Xenophon Evangelopoulos<sup>\*</sup> and Andrew I. Cooper<sup>\*</sup>



12860

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

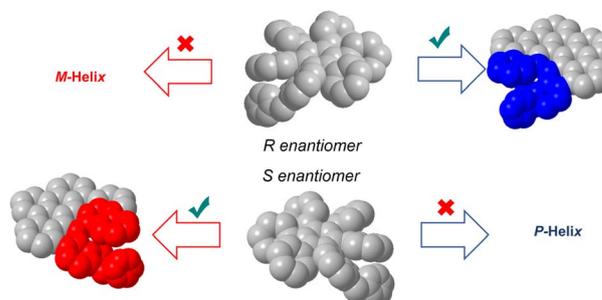
Yu Tung Wong, Charles Bell and Michael C. Willis\*



12867

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

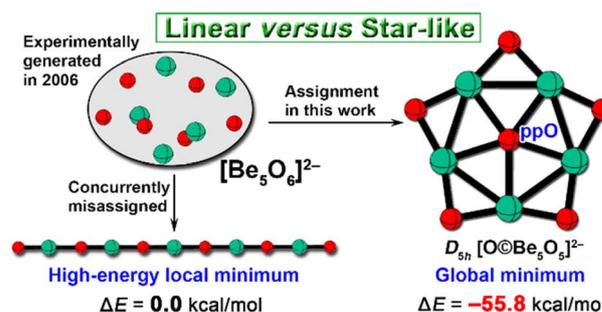
Sergio Marcos López, Manuel Buendia, Israel Fernández,\* Salvatore Filippone\* and Nazario Martín\*



12873

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

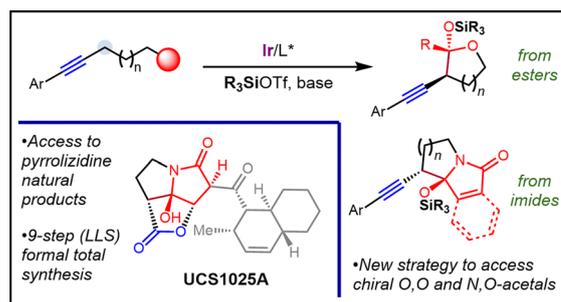
Rui Sun, Yang Yang, Xin Wu, Hua-Jin Zhai, Caixia Yuan\* and Yan-Bo Wu\*



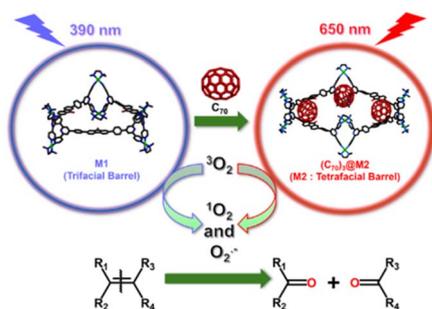
12879

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

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



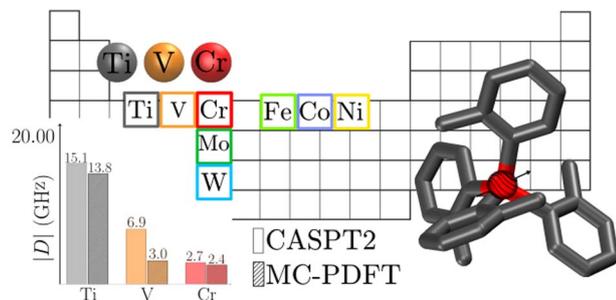
12885



### Transformation of a Pd<sub>6</sub> trifacial barrel to a Pd<sub>8</sub> tetrafacial barrel by C<sub>70</sub> as guest and oxidative photolysis of alkenes using the C<sub>70</sub> encapsulated barrel under red light

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

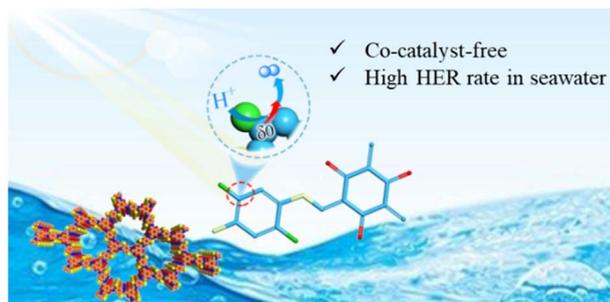
12896



### 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\*

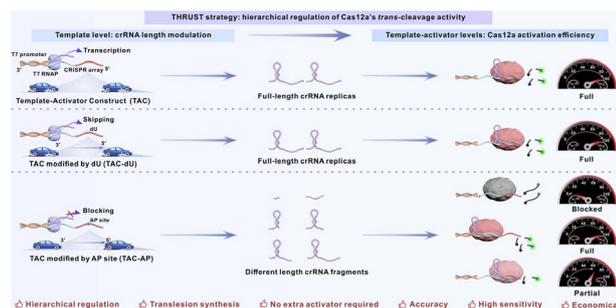
12906



### 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

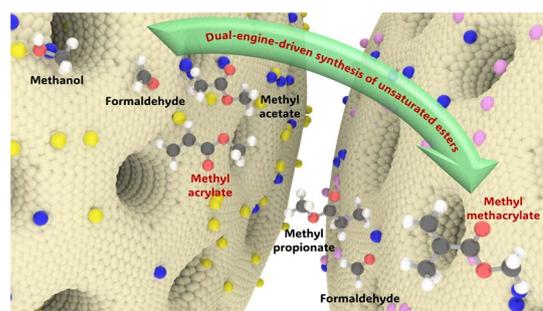
Lulu Qin, Wen-Jin Wang, Xinyi Xia, Tongshan Zuo, Yilin Cai, Guanhong Xu, Fangdi Wei, Suling Wang, Qin Hu, Zheng Zhao, Fan Zhang,\* Ben Zhong Tang\* and Yao Cen\*



12927

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

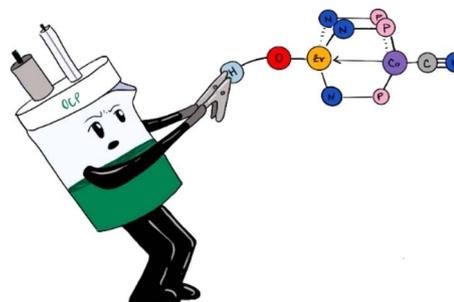
Jiaqi Fan, Lishu Shao,\* Weizhe Gao, Yitong Han, Wenjie Xiang, Hao Huang, Zhihao Liu, Chufeng Liu, Bo Wang, Kangzhou Wang, Guangbo Liu, Jiancai Sui, Qiang Liu, Tao Li, Tao Xing, Shuhei Yasuda, Zhixin Yu,\* Guohui Yang,\* Peipei Zhang\* and Noritatsu Tsubaki\*



12941

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

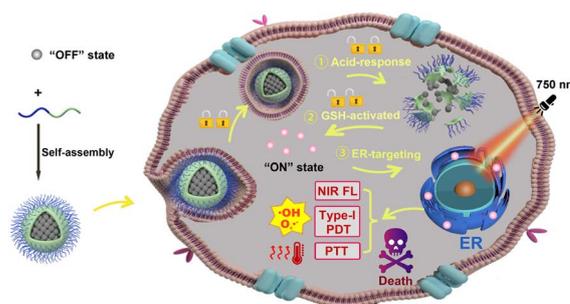
Julia Feresin, Brett A. Barden, Jayden A. Reyes, Preshit C. Abhyankar, Seth M. Barrett\* and Christine M. Thomas\*



12947

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

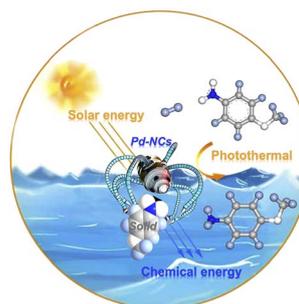
Rumeng Zhan, Weijie Zhou, Hongyu Ma, Menghui Zou, Mingming Zhang,\* Weian Zhang\* and Jia Tian\*



12956

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

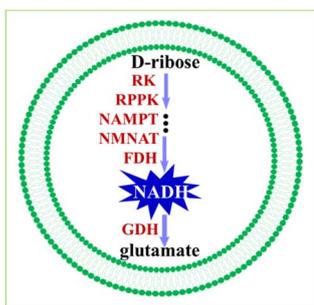
Xia Wang, Ming-Hui Su, Jia-Yong Zhou, Shao-Shuai Liu, Jin-Wei Yuan, Liang-Ru Yang, Meng Yan, Ya-Xin Li and Yun-Tao Xia\*



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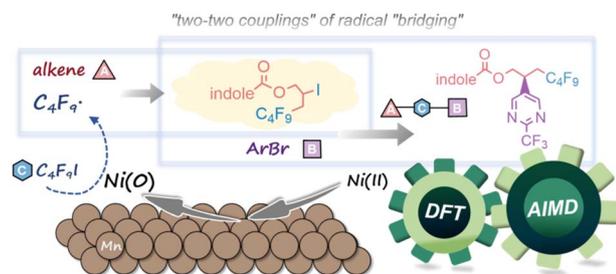
12969



### 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\*

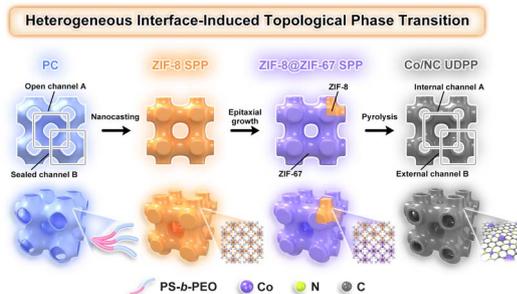
12982



### 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\*

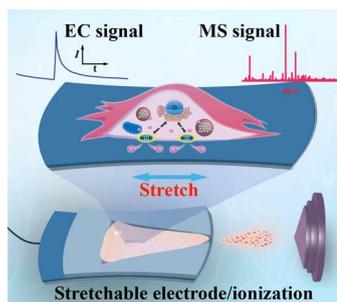
12994



### 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

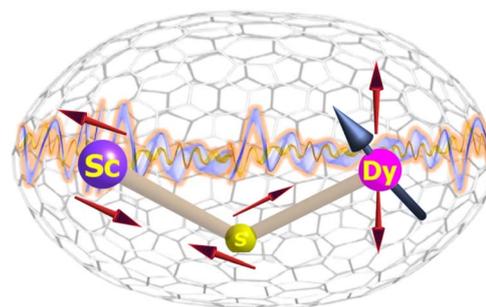
Haotian Wang, Jing Yan, Jiamei Lin, Caiying Zhang, Xinglei Zhang, Rui Su,\* Yan-Ling Liu\* and Jiaquan Xu\*



13012

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

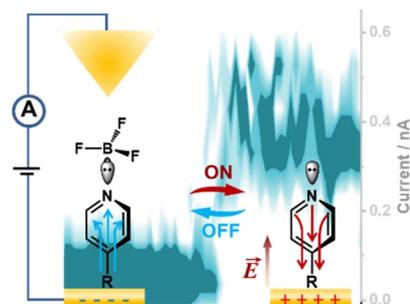
Tanu Sharma, Rupesh Kumar Tiwari, Sourav Dey, Lorenzo A. Mariano, Alessandro Lunghi\* and Gopalan Rajaraman\*



13022

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

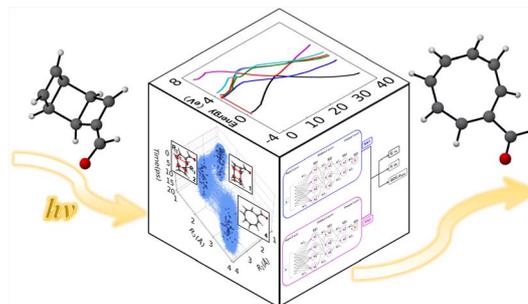
Ya-Li Zhang, Tian-Hang Bai, Jing-Tao Ye, Li-Na Luo, Qiang Wan,\* Ju-Fang Zheng, Yong Shao, Ya-Hao Wang\* and Xiao-Shun Zhou\*



13031

### Machine learning photodynamics reveal intersystem-crossing-driven ladderiene ring opening

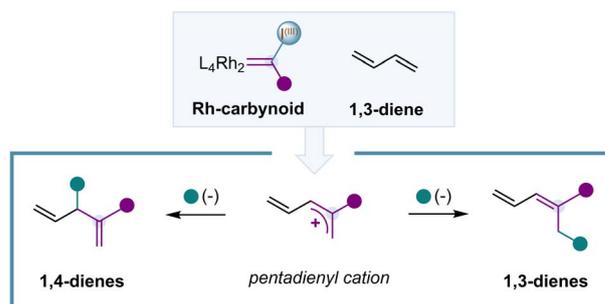
Zhendong Li, Haijun Fu, Steven A. Lopez\* and Jingbai Li\*



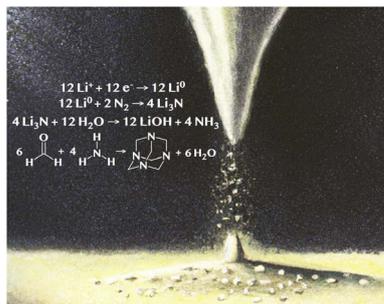
13042

### 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\*

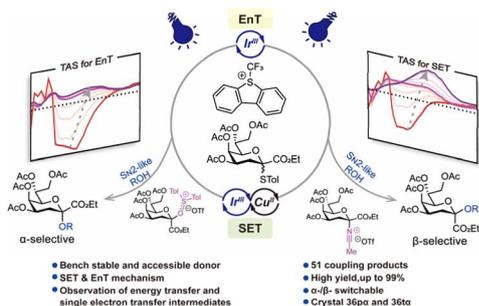
13057



### 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\*

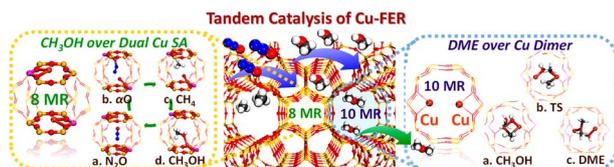
13070



### Single electron/energy transfer photocatalysis: $\alpha$ -/ $\beta$ -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

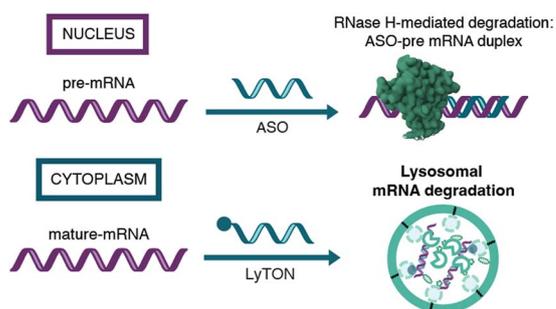
Ning Liu, Tingting Zhang, Chengna Dai, Ruinian Xu, Gangqiang Yu, Ning Wang and Biaohua Chen\*



13096

## Engineering antisense oligonucleotides for targeted mRNA degradation through lysosomal trafficking

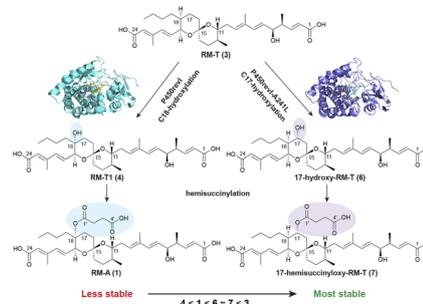
Disha Kashyap, Thomas A. Milne\* and Michael J. Booth\*



13106

## Biosynthesis of reveromycin derivatives by altering the regioselectivity of cytochrome P450revI

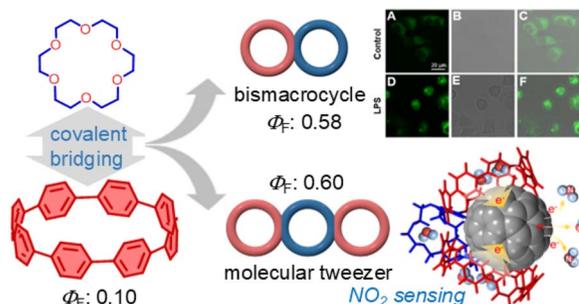
Ya Fen Yong, Song Liu, Katsuyuki Sakai, Keisuke Fujiyama, Hiroshi Takagi, Yushi Futamura, Takeshi Shimizu, Hiroyuki Osada, Eugene Boon Beng Ong and Shunji Takahashi\*



13115

## Crown ether–cycloparaphenylene hybrid multimacrocycles: insights into supramolecular gas sensing and biological potential

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

13122

## 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\*



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\*

