

## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 15(23) 8593–9002 (2024)



### Cover

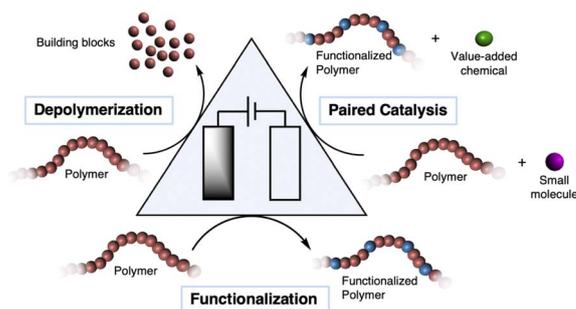
See Laurent Bouffier, Neso Sojic *et al.*, pp. 8723–8730. Image reproduced by permission of Hugo Gabriel Arias Aranda from *Chem. Sci.*, 2024, 15, 8723.

## PERSPECTIVES

8606

### Electrochemical recycling of polymeric materials

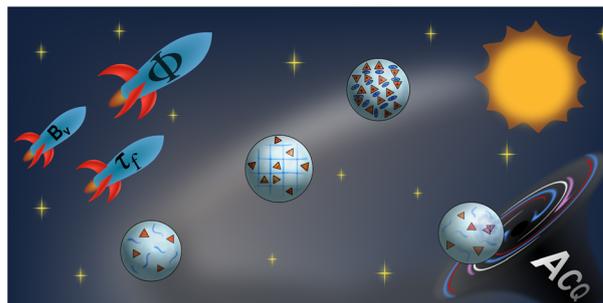
Weizhe Zhang, Lars Killian and Arnaud Thevenon\*



8625

### Photophysics of fluorescent nanoparticles based on organic dyes – challenges and design principles

Stine G. Stenspil and Bo W. Laursen\*



# Environmental Science journals

One impactful portfolio for  
every exceptional mind

Harnessing the power of interdisciplinary  
science to preserve our environment

[rsc.li/envsci](https://rsc.li/envsci)

Fundamental questions  
Elemental answers

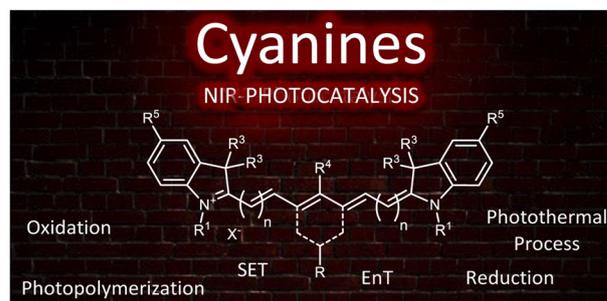


## PERSPECTIVES

8639

**Near-infrared photocatalysis with cyanines: synthesis, applications and perspectives**

Nicolas Sellet, Johanna Frey, Morgan Cormier\* and Jean-Philippe Goddard\*



## REVIEWS

8651

**Emerging high voltage  $V^{4+}/V^{5+}$  redox reactions in  $Na_3V_2(PO_4)_3$ -based cathodes for sodium-ion batteries**

Meng Zhou, Xunzhu Zhou, Lin Li,\* Xiang Chen, Zhenan Qiao\* and Shulei Chou\*



8664

**Future prospects of high-entropy alloys as next-generation industrial electrode materials**

Saikat Bolar, Yoshikazu Ito and Takeshi Fujita\*

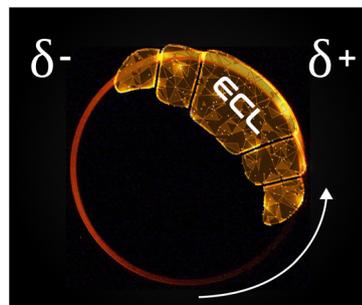


## EDGE ARTICLES

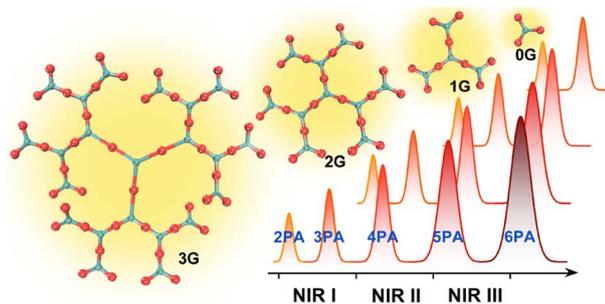
8723

**Complex electrochemiluminescence patterns shaped by hydrodynamics at a rotating bipolar electrode**

Leslie R. Arias-Aranda, Gerardo Salinas, Alexander Kuhn, Guobao Xu, Frédéric Kanoufi, Laurent Bouffier\* and Neso Sojic\*



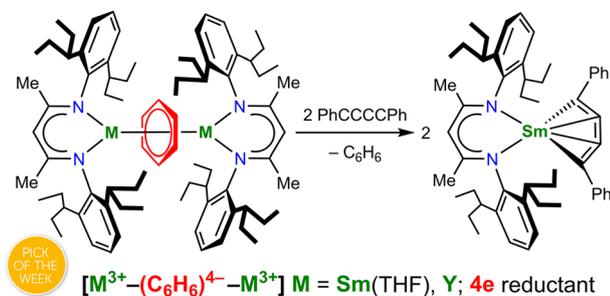
8731



### Exceptional three- to six-photon absorption at organometallic dendrimers

Ling Zhang, Mahbod Morshedi, Torsten Schwich, Rika Kobayashi and Mark G. Humphrey\*

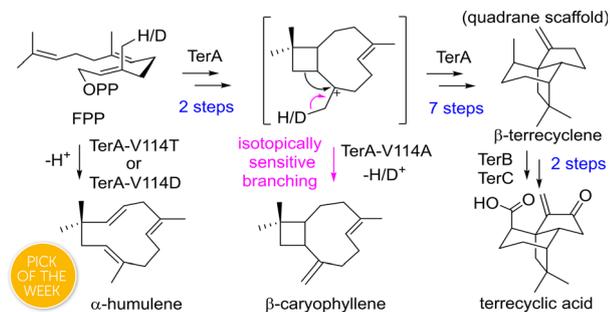
8740



### Neutral inverse-sandwich rare-earth metal complexes of the benzene tetraanion

Yi Wang, Yurou Zhang, Jiefeng Liang, Bowen Tan, Chong Deng and Wenliang Huang\*

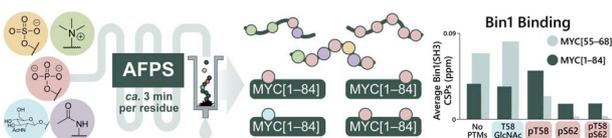
8750



### β-Terrecyclene synthase constructs the quadrane backbone in terrecyclic acid biosynthesis

Yongxiang Song, Wengui Wang, Jiafan Yang, Dewei Gao, John M. Billingsley, Songtao Wang, Yiguang Zhu, Junfeng Wang, Jianhua Ju, Yan Yan\* and Yi Tang

8756



### Rapid flow-based synthesis of post-translationally modified peptides and proteins: a case study on MYC's transactivation domain

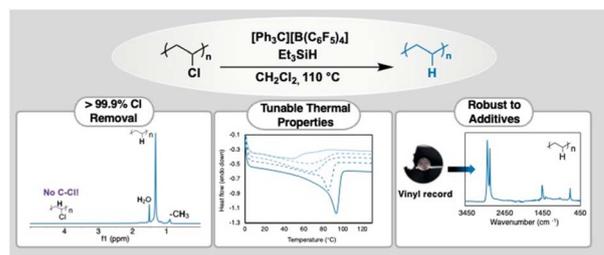
Elyse T. Williams, Kevin Schiefelbein, Matthias Schuster, Ikhlas M. M. Ahmed, Marije De Vries, Rebecca Beveridge, Oliver Zerbe and Nina Hartrampf\*



8766

### Conversion of waste poly(vinyl chloride) to branched polyethylene mediated by silylium ions

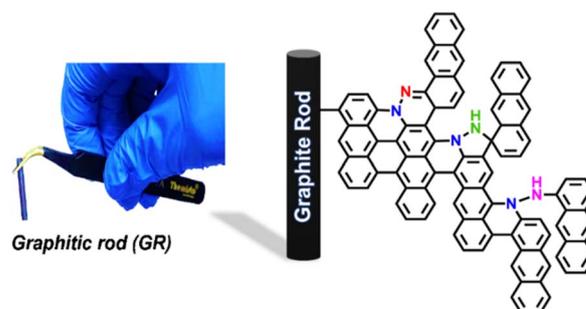
Zachary A. Wood, Eunice C. Castro, Angelyn N. Nguyen and Megan E. Fieser\*



8775

### Metal-free platforms for molecular thin films as high-performance supercapacitors

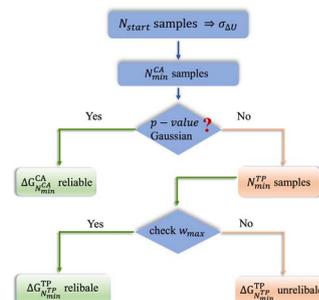
Ritu Gupta, Ankur Malik, Kusum Kumari, Saurabh Kumar Singh, Vincent Vivier\* and Prakash Chandra Mondal\*



8786

### Convergence criteria for single-step free-energy calculations: the relation between the II bias measure and the sample variance

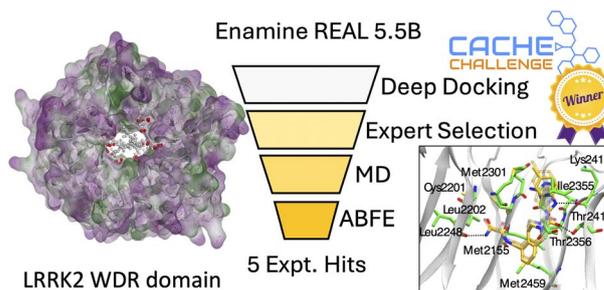
Meiting Wang, Ye Mei\* and Ulf Ryde\*



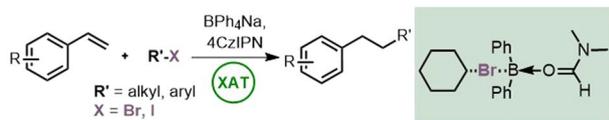
8800

### In silico screening of LRRK2 WDR domain inhibitors using deep docking and free energy simulations

Evgeny Gutkin, Filipp Gusev, Francesco Gentile, Fuqiang Ban, S. Benjamin Koby, Chamali Narangoda, Olexandr Isayev,\* Artem Cherkasov\* and Maria G. Kurnikova\*



8813

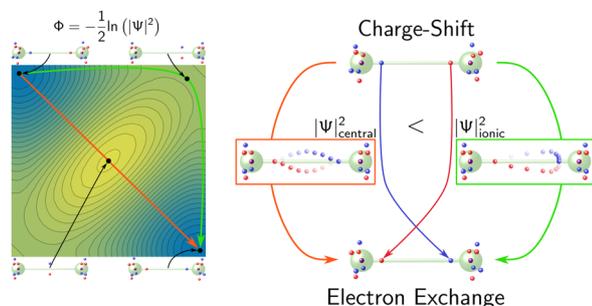


- Easily accessible, stable, inexpensive boryl radical source
- Expanded reactivity to alkyl/aryl bromides
- Hydroalkylation of styrenes
- More than 40 examples

### Hydroalkylation of styrenes enabled by boryl radical mediated halogen atom transfer

Serena Pillitteri, Rajat Walia, Erik V. Van der Eycken and Upendra K. Sharma\*

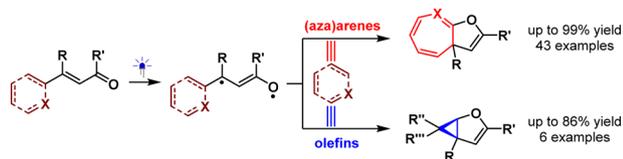
8820



### Identifying a real space measure of charge-shift bonding with probability density analysis

Michel V. Heinz, Leonard Reuter and Arne Lüchow\*

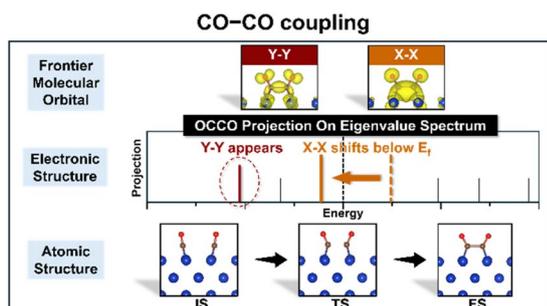
8828



### Visible light-driven dearomative ring expansion of (aza)arenes to access dihydrofuran-based polycyclic compounds

Linghong Zhang, Mengdi You, Xu Ban, Xiaowei Zhao, Yanli Yin, Shanshan Cao\* and Zhiyong Jiang\*

8835



### Origin of copper as a unique catalyst for C-C coupling in electrocatalytic CO<sub>2</sub> reduction

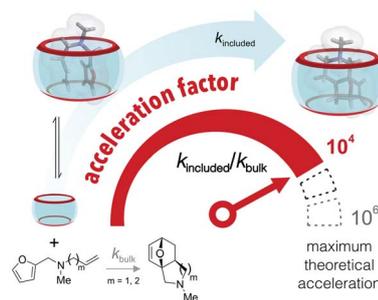
Jie Chen, Benjamin W. J. Chen, Jia Zhang,\* Wei Chen and Yi-Yang Sun\*



8841

### Investing in entropy: the strategy of cucurbit[n]urils to accelerate the intramolecular Diels–Alder cycloaddition reaction of tertiary furfuryl amines

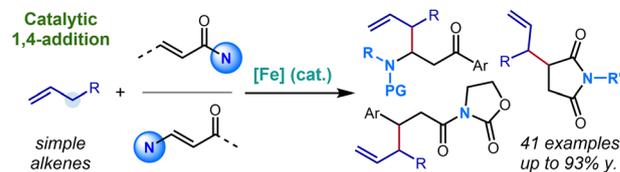
Karen de la Vega-Hernández, Marcos G. Suero\* and Pablo Ballester\*



8850

### A C–H functionalization approach to diverse nitrogenous scaffolds through conjugate addition of catalytic allyliron nucleophiles

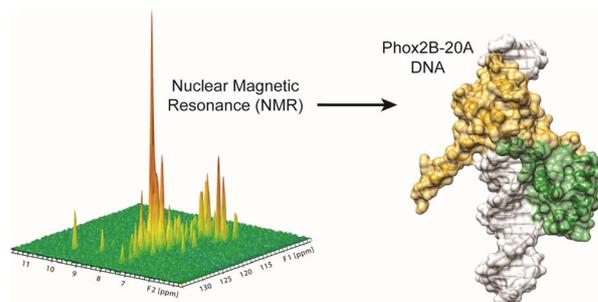
Sarah G. Scrivener and Yi-Ming Wang\*



8858

### Structural characterization of PHOX2B and its DNA interaction shed light on the molecular basis of the +7Ala variant pathogenicity in CCHS

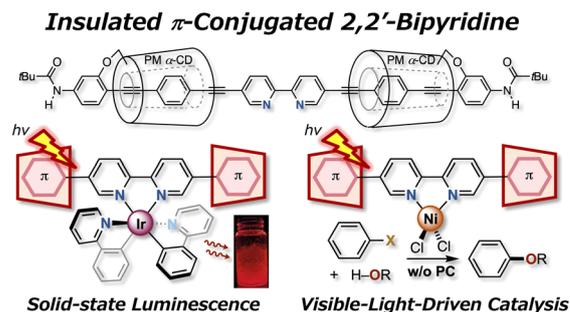
Donatella Diana, Luciano Pirone, Luigi Russo, Gianluca D'Abrosca, Manoj Madheswaran, Roberta Benfante, Simona Di Lascio, Laura Caldinelli, Diego Fornasari, Clementina Acconcia, Andrea Corvino, Nataliia Ventserova, Loredano Pollegioni, Carla Isernia, Sonia Di Gaetano, Gaetano Malgieri,\* Emilia M. Pedone\* and Roberto Fattorusso\*



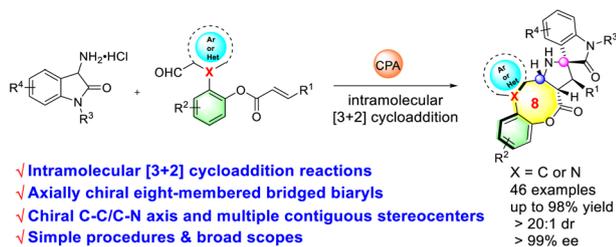
8873

### Insulated $\pi$ -conjugated 2,2'-bipyridine transition-metal complexes: enhanced photoproperties in luminescence and catalysis

Tomohiro Iwai,\* Shinsuke Abe, Shin-ya Takizawa, Hiroshi Masai and Jun Terao\*



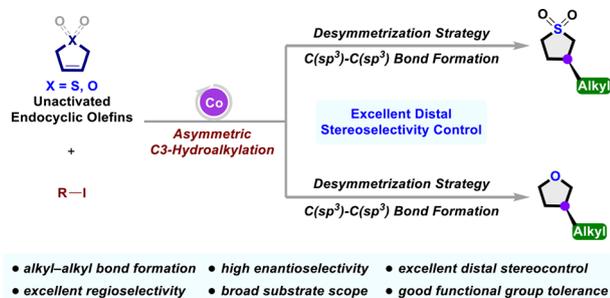
8880



### Organocatalytic diastereo- and atropo-selective construction of eight-membered bridged (hetero) biaryls via asymmetric intramolecular [3 + 2] cycloaddition

Yue Wang, Yue Huang, Xiaoze Bao, Xingfu Wei, Shiqiang Wei, Jingping Qu and Baomin Wang\*

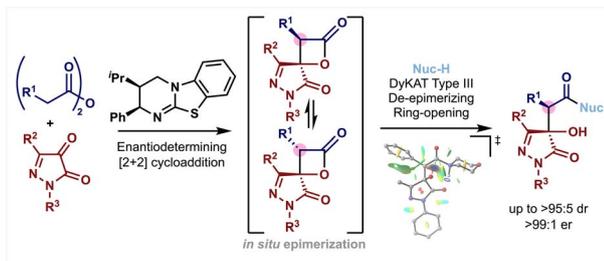
8888



### CoH-catalyzed asymmetric remote hydroalkylation of heterocyclic alkenes: a rapid approach to chiral five-membered S- and O-heterocycles

Lingzi Zhao, Feipeng Liu, Yan Zhuang, Mengyang Shen, Jing Xue, Xuchao Wang, Yuting Zhang and Zi-Qiang Rong\*

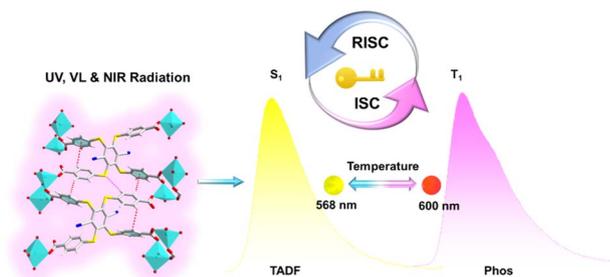
8896



### De-epimerizing DyKAT of $\beta$ -lactones generated by isothiourea-catalysed enantioselective [2 + 2] cycloaddition

Aife Conboy, Alister S. Goodfellow, Kevin Kasten, Joanne Dunne, David B. Cordes, Michael Bühl\* and Andrew D. Smith\*

8905



### Thermal control over phosphorescence or thermally activated delayed fluorescence in a metal-organic framework

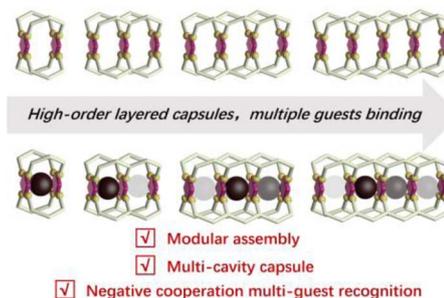
Huili Sun, Qiangsheng Zhang, Liuli Meng, Zhonghao Wang, Yanan Fan, Marcel Mayor, Mei Pan\* and Cheng-Yong Su



8913

### High-order layered self-assembled multicavity metal–organic capsules and anti-cooperative host–multi-guest chemistry

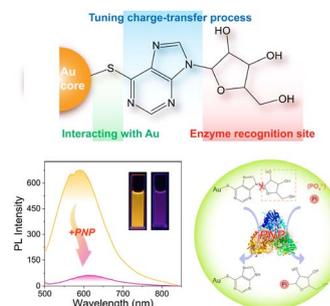
Kaixiu Li, Zhengguang Li, Jie Yuan, Mingzhao Chen, He Zhao, Zhiyuan Jiang, Jun Wang, Zhilong Jiang, Yiming Li, Yi-Tsu Chan, Pingshan Wang\* and Die Liu\*



8922

### Enzyme-activatable charge transfer in gold nanoclusters

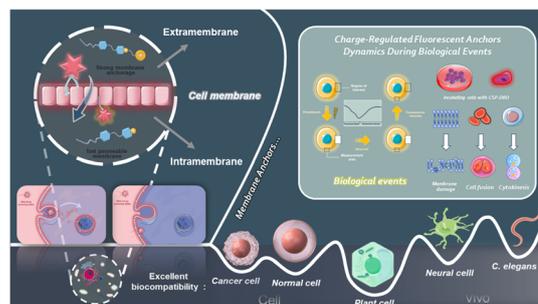
Hao-Hua Deng, Kai-Yuan Huang, Yu Zhong, Ye Li, Hong-Xiang Huang, Xiang-Yu Fang, Wei-Ming Sun,\* Qiaofeng Yao, Wei Chen\* and Jianping Xie\*



8934

### Charge-regulated fluorescent anchors enable high-fidelity tracking of plasma membrane dynamics during biological events

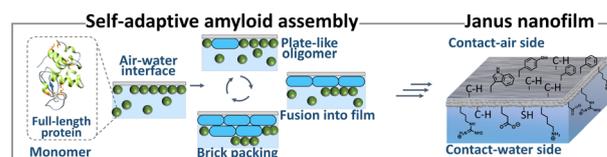
Jiaqi Zuo, Aohui Peng, Penglei Wu, Junyi Chen, Chuangye Yao, Junjun Pan, Engao Zhu, Yingye Weng, Kewei Zhang, Hui Feng, Zhigang Jin\* and Zhaosheng Qian\*



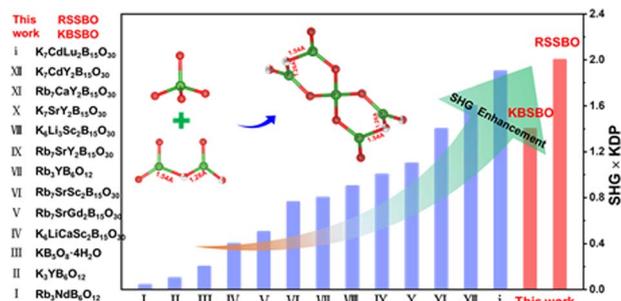
8946

### Non-fibril amyloid aggregation at the air/water interface: self-adaptive pathway resulting in a 2D Janus nanofilm

Hao Ren, Huan Chen, Yu Kang, Wei Liu, Yongchun Liu, Fei Tao, Shuting Miao, Yingying Zhang, Qian Liu, Mingdong Dong, Yonggang Liu,\* Bing Liu\* and Peng Yang\*



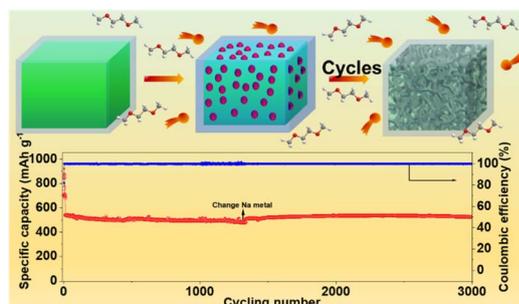
8959



### A bifunctional primitive strategy induces enhancements of large second harmonic generation and wide UV transmittance in rare-earth borates containing [B<sub>5</sub>O<sub>10</sub>] groups

Shuaifeng Li, Weiming Li, Xiang Li, Guangsai Yang, Ning Ye, Zhanggui Hu, Yicheng Wu and Conggang Li\*

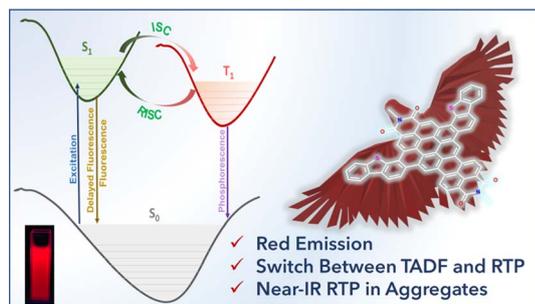
8966



### Synergistic interface and structural engineering for high initial coulombic efficiency and stable sodium storage in metal sulfides

Chunrong Ma, Zhengguang Fu, Yanchen Fan, Hui Li, Zifeng Ma, Wei Jiang, Guangshuai Han,\* Haoxi Ben\* and Hui (Claire) Xiong\*

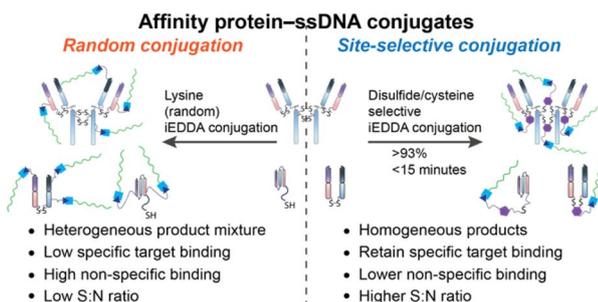
8974



### A nine-ring fused terrylene diimide exhibits switching between red TADF and near-IR room temperature phosphorescence

Shivangee Jha, Kundan Singh Mehra, Mandira Dey, Sujesh S, Debashree Ghosh,\* Pradip Kumar Mondal, Maurizio Polentarutti and Jeyaraman Sankar\*

8982



### Site-directed conjugation of single-stranded DNA to affinity proteins: quantifying the importance of conjugation strategy

Andres Rocha Tapia, Fabrice Abgottspon, Johan Nilvebrant, Per-Åke Nygren, Sarah Duclos Ivetich, Andres Javier Bello Hernandez, Ioanna A. Thanasi, Peter A. Szijj, Ghali Sekkat, François M. Cuenot, Vijay Chudasama, Nicola Aceto, Andrew J. deMello and Daniel A. Richards\*

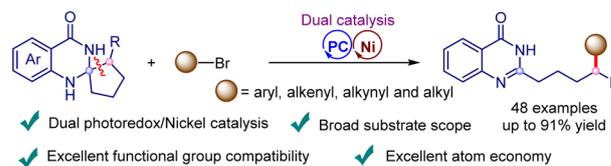


## EDGE ARTICLES

8993

### Aromatization-driven deconstructive functionalization of spiro dihydroquinazolinones via dual photoredox/nickel catalysis

Hong-Jie Miao, Jin-Hua Zhang, Wenke Li, Wenpeng Yang, Hong Xin, Pin Gao, Xin-Hua Duan and Li-Na Guo\*



## CORRECTION

9000

### Correction: Toward robust lithium–sulfur batteries via advancing Li<sub>2</sub>S deposition

Xun Jiao, Xiaoxia Tang, Jinrui Li, Yujiao Xiang, Cunpu Li,\* Cheng Tong,\* Minhua Shao and Zidong Wei\*

