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### Cover

See Atsuto Furuse and Takayuki Kojima, pp. 14903–14906. Image reproduced by permission of Takayuki Kojima from *Chem. Commun.*, 2025, 61, 14903.



### Inside cover

See Christian Müller *et al.*, pp. 14907–14910. Image reproduced by permission of Leo Steffen and Tim Schwidetzky from *Chem. Commun.*, 2025, 61, 14907.

## PROFILE

14744

### Contributors to the Pioneering Investigators collection 2025: Part 1



## CONFERENCE REPORT

14751

### Highlights from the Faraday Discussion on Structural and Functional Asymmetry of Plasma Membranes, London, UK, April 2025

Aileen Cooney,\* Niclas Decker, Zhibo Deng and Michael Kaltenecker



# Environmental Science: Atmospheres

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Fundamental questions  
Elemental answers

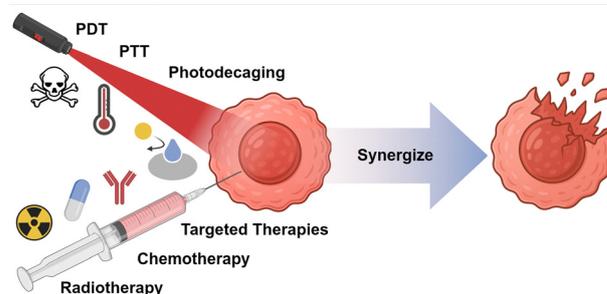


## HIGHLIGHTS

14757

**Synergistic effects of combining phototherapeutics with traditional treatment modalities in oncology**

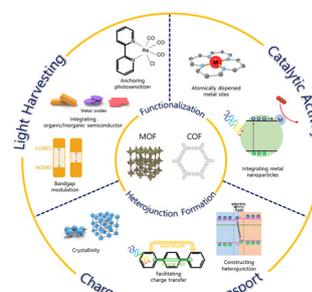
Flavia Kradolfer, Caroline Maake and Bernhard Spingler\*



14773

**Advancing metal–organic frameworks and covalent organic frameworks for photocatalytic CO<sub>2</sub> reduction**

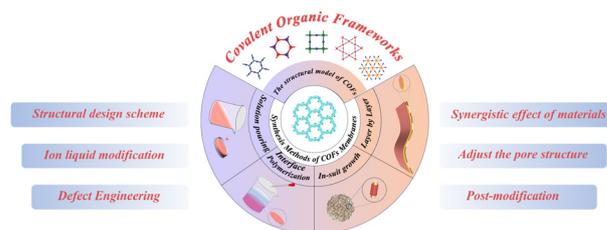
Jeewon Bu, Woo Seok Cheon, Hyojung Kim,\* Myoung Hwan Oh\* and Ho Won Jang\*



14795

**Covalent organic framework membranes for CO<sub>2</sub> separation: recent advances and challenges**

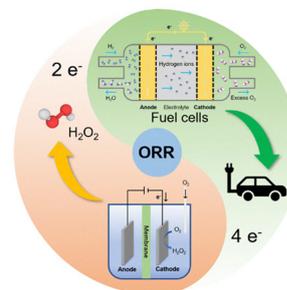
Zeyang Di, Wenjun Su, Shumin Li, Suyue Zhong, Weimin Liu\* and Jian Li\*



14814

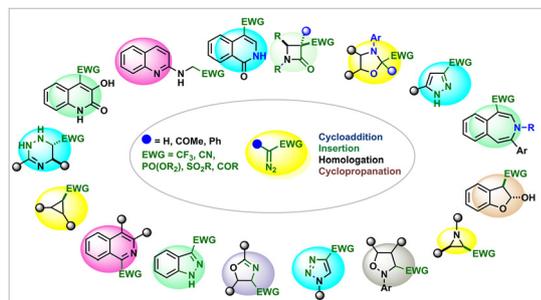
**Recent advances in oxygen reduction reaction catalysis under neutral conditions**

Yangkai Li, Liyuan Liu, Jun Lv, Xinyu Wang,\* Wenting Cai\* and Wangqiang Shen\*



## FEATURE ARTICLES

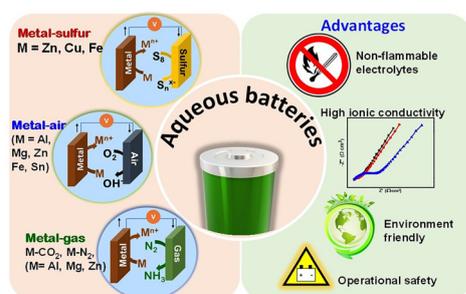
14823



### Harnessing the power of $\alpha$ -diazo compounds: emerging strategies and expanding applications

Mumtaz Ahmad, Anuj Kumar, Shakir Ahmad and Kishor Mohanan\*

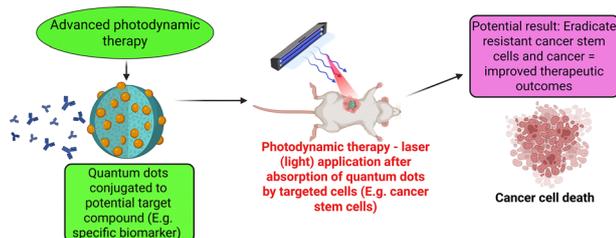
14843



### Emerging role of aqueous batteries in next generation energy-dense sustainable storage

Aayushi Prakash Sinha, Tino S. Thomas and Debaprasad Mandal\*

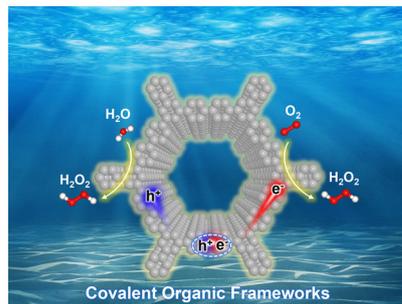
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### The role of quantum dots in enhancing the therapeutic targeting of cancer stem cells

Malefo Tshepiso Mofokeng, Onyisi Christiana Didamson and Heidi Abrahamse\*

14888



### Regulating charge dynamics in covalent organic frameworks for efficient solar-driven hydrogen peroxide production

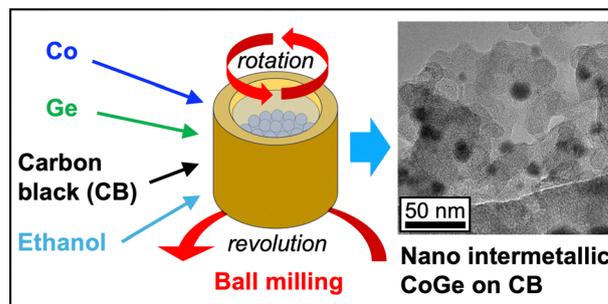
Wan Zhang, Jie Zhou, Lei Wang, Ying Zhang\* and Hangxun Xu\*



14903

### Synthesis of supported intermetallic nanoparticle catalysts using ball milling: a case of CoGe on carbon black

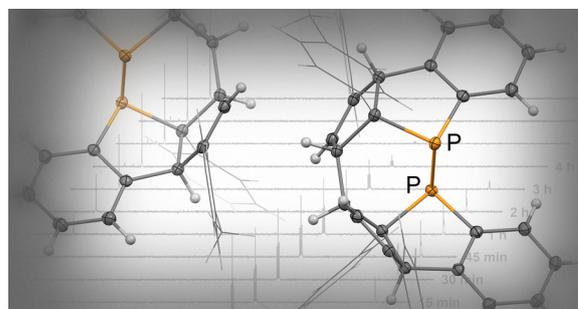
Atsuto Furuse and Takayuki Kojima\*



14907

### Di- $\pi$ -methane rearrangement in 1-phosphabarrelenes: formation and reactivity of an unprecedented 2-phosphasemibullvalene

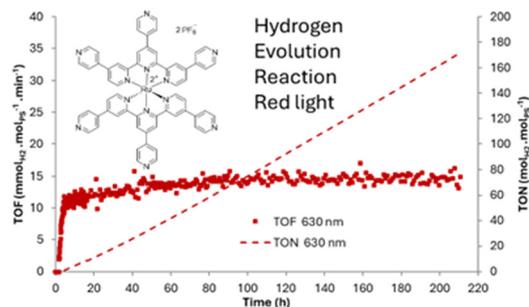
Leo Steffen, Lilian S. Szych, Yannick J. Franzke, Richard O. Kopp, Moritz J. Ernst, Manuela Weber and Christian Müller\*



14911

### A ruthenium terpyridine complex showing stable photocatalytic hydrogen evolution under red light

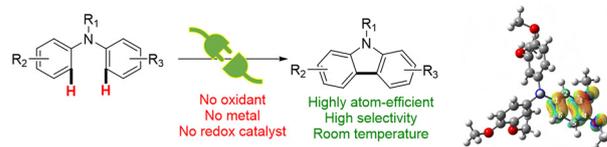
Gabriel M. Mercier, Elodie Rousset, Ilyes Oubaha, Kamalika Bandyopadhyay, Amlan K. Pal, Ilaria Ciofini, Lise-Marie Chamoreau, Valérie Marvaud\* and Garry S. Hanan\*



14915

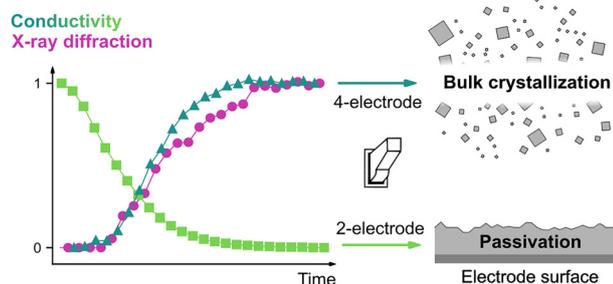
### Electrochemical dehydrogenative intramolecular C–C coupling for expedient carbazole synthesis

Mingyue Wu, Albertus Denny Handoko, Kexin Zhu, Chi-Lik Ken Lee, Philip W. Miller, Mark R. Crimmin and Balamurugan Ramalingam\*



## COMMUNICATIONS

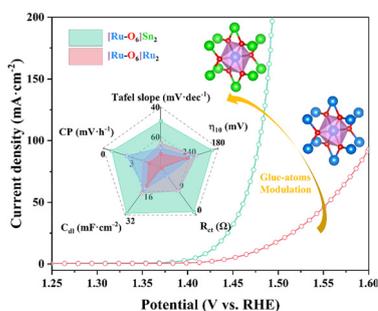
14919



### Multi-modal impedance and X-ray characterization enables simultaneous detection of bulk and interfacial crystallization

Nikolaus Doppelhammer,\* Daniel Spira, Anjul Rais, Dries Vandenberghe, Wauter Wangermez, Charles McMonagle, Dmitry Chernyshov and Eric Breynaert\*

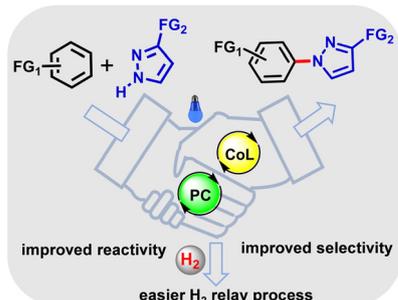
14923



### Optimal design of Ru–Sn oxide catalysts for enhanced oxygen evolution reaction using the cluster-plus-glue-atom model

Yue Yu, Guikai Zhang, Ruqi Wang, Pengfei An, Shengqi Chu, Yue Lu,\* Manling Sui and Juncai Dong\*

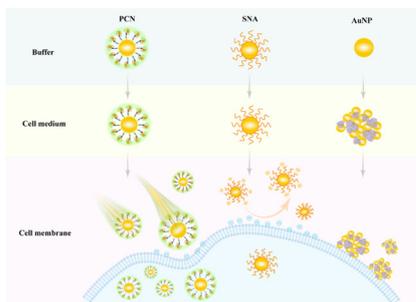
14927



### Facile oxidative amination with imidazole and L-histidine coordinated cobaloximes

Rachit Singh Chauhan, Subir Panja, Bikiran Pal, Prabir Manna, Chandan Nandi, Santanu Ghorai, Arnab Dutta\* and Debabrata Maiti\*

14931



### A CRISPR Cas protein coronated AuNP nanostructure for enhanced uptake efficiency into cells

Zhaojia Deng, Rui Sha, Hua Qin, Yingxu Shang, Aijiao Yuan, Wenjing Xie and Hanyong Peng\*



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### A copper(II) metal–organic hydrogel as a heterogeneous reusable catalyst for the synthesis of 1,3-oxathiolane-2-thiones from the reaction of CS<sub>2</sub> and epoxides

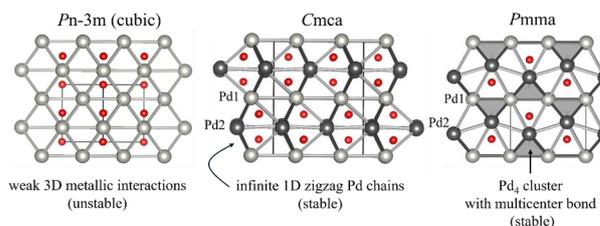
Mahesh Samanta, Tapas Mahata and Manish Bhattacharjee\*



14939

### Metal–metal interactions in an open d-shell system with cuprite structure

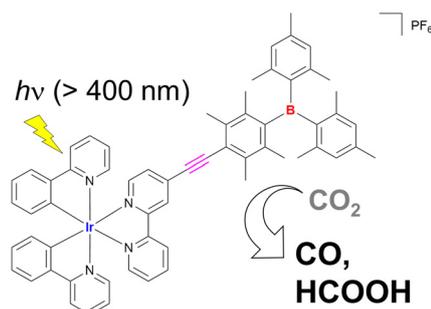
Diana Fabušová, Mariana Derzsi\* and Kamil Tokár



14943

### Covalently linked triarylborane–iridium(III) complex as a photocatalyst for CO<sub>2</sub> reduction

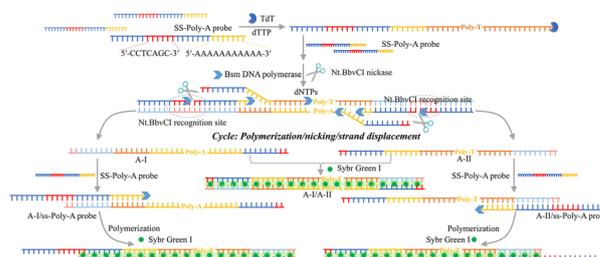
Ryo Fukumoto, Takuya Yokoo, Eri Sakuda,\* Kenichiro Omoto, Shinnosuke Horiuchi, Yasuhiro Arikawa and Keisuke Umakoshi\*



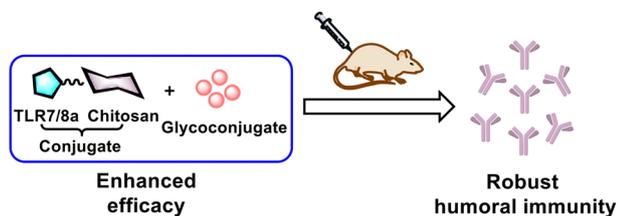
14947

### Self-propagating amplification with a ss-polyadenine probe enables label-free detection of terminal deoxynucleotidyl transferase

Baoqiang Chen, Haidong Yang, Zhuqi Sui, Yuanyuan Yao, Longhua Guo\* and Jianguo Xu\*



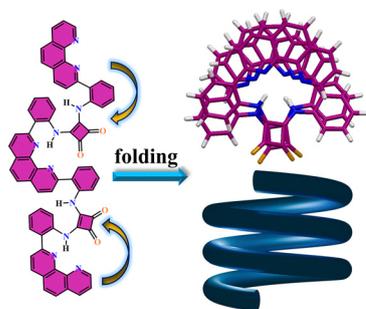
14951



### A TLR7/8 agonist–chitosan conjugate as an adjuvant for carbohydrate-based anticancer vaccine development

Xu-Guang Yin, Guo-Zuo Tong, Si-Qi Huang, li-Yuan Chen, Ang-Tao Yang, Wen-Jing Teng, Xiang Luo and Ke-Wu Zhu\*

14955



### Foldamer engineering with squaramide and phenanthroline motifs: synthesis, characterisation, and structural insights

Renitta Benny, Alex P. Andrews and Soumen De\*

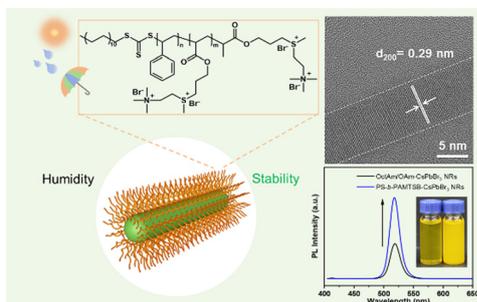
14959



### Structure-guided and evolutionary design of a ratiometric fluorescent probe for field-level detection of pyriproxyfen

Qifeng Zheng, Immanuel David Charles\* and Bin Liu\*

14963



### Durable cesium metal halide perovskite nanorods formed using a multifunctional polycationic diblock copolymer

Chengli Wang, Yue Zhang, Wenjie Zhang, Jinyue Sun, Xiaotian Ding, Xiaomeng Zhang, Zhe Cui, Peng Fu, Mingyong Liu, Ge Shi, Yajing Chang, Jun Zhang,\* Yanjie He\* and Xinchang Pang\*

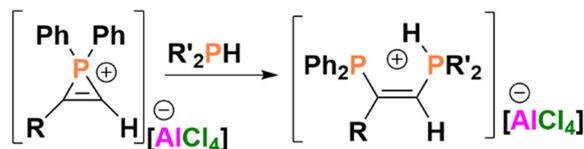


## COMMUNICATIONS

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### A facile route to *cis*-olefin-linked phosphino-phosphonium salts of the form: $[\text{Ph}_2\text{PC}(\text{R})\text{C}(\text{H})\text{P}(\text{R}')_2\text{H}][\text{AlCl}_4]$

Nahil Al-Zuhaika, Simon Severin, Madeleine D. Schmuckler, Alan J. Lough and Douglas W. Stephan\*

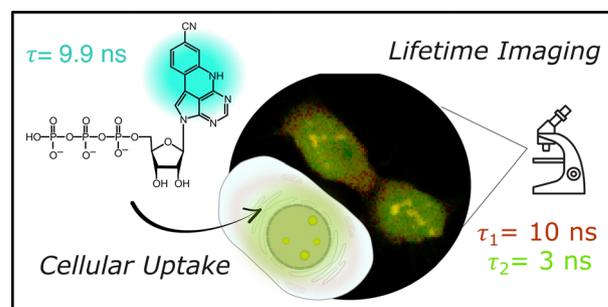


$\text{R}' = t\text{Bu}, \text{Cy}, \text{Mes}$   
 $\text{R} = t\text{Bu}, \text{Me}_3\text{Si}, p\text{-tol}, p\text{-BrC}_6\text{H}_4$

14971

### Monitoring nucleoside metabolism in living cells with a nucleobase analogue via fluorescence lifetime imaging

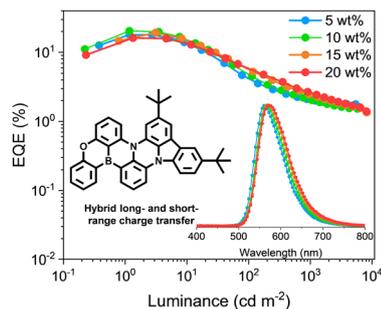
Pauline Pfeiffer, Niusha Bagheri, Chen Qian, Jerker Widengren and L. Marcus Wilhelmsson\*



14975

### Incorporating hybrid charge transfer within a boron/nitrogen/oxygen-embedded scaffold for efficient yellow electroluminescence

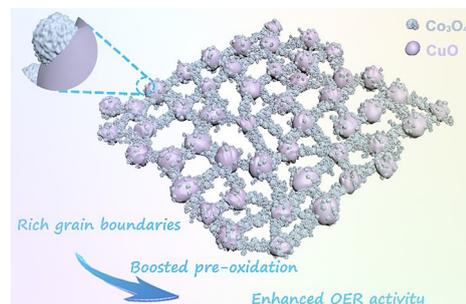
Ji-Hua Tan, Xiao-Long Liu, Yao-Zu Su, Longjiang Xing, Yanping Huo, Jia-Xiong Chen,\* Zujin Zhao\* and Wen-Cheng Chen\*



14979

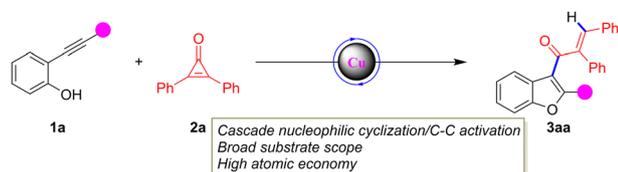
### Grain boundary-engineered porous $\text{CuO}/\text{Co}_3\text{O}_4$ heterostructure as a pre-catalyst for enhanced oxygen evolution

Pengfeng Li, Wenqian Zheng, Min Guo, Yuhua Chen, Fuji Jia, Liheng Sun, Fengcai Lei, Xu Sun\* and Junfeng Xie\*



## COMMUNICATIONS

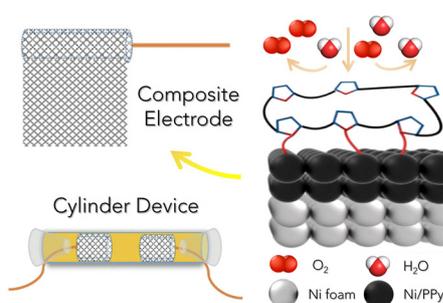
14983



### Cu(II)-catalyzed synthesis of 3-functionalized benzofurans via sequential nucleophilic cyclization and C–C bond activation

Ao Zhou, Muhammad Aslam, Guo-Jie Xu, Ying-Zi Liu, Wei Sun and Meng Sun\*

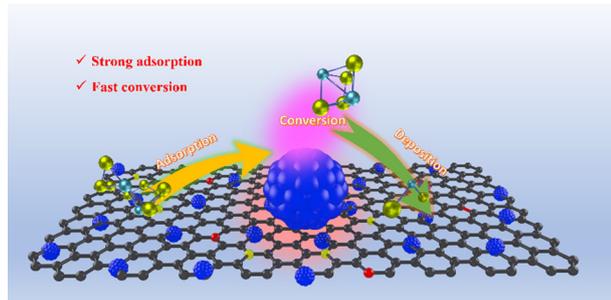
14987



### Polypyrrole-engineered nickel-based composite electrodes for thermocells with enhanced power output and stability

Zhi Chen, Kaihua Zhu, Hongcheng Li, Bin Xie, Mingyu Li, Yang Huang, Guangming Chen\* and Zhuoxin Liu\*

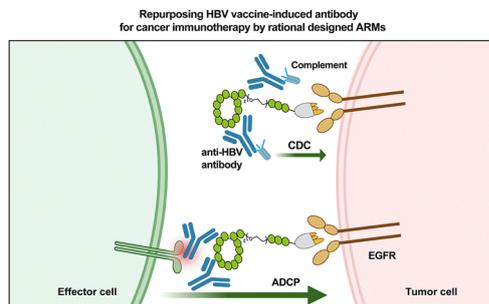
14991



### Synergistic catalysis of VN quantum dots and S/N heteroatoms enabling fast reaction kinetics for lithium–sulfur batteries

Peng Zeng,\* Kangqiao Miao, Hao Zhang, Guoping Xiang,\* Manfang Chen and Xianyou Wang\*

14995



### Repurposing vaccine-induced anti-HBV antibodies for endogenous immunotherapy against EGFR-positive tumors

Zijiang Zhang, Yanchun Li, Haofei Hong and Zhimeng Wu\*

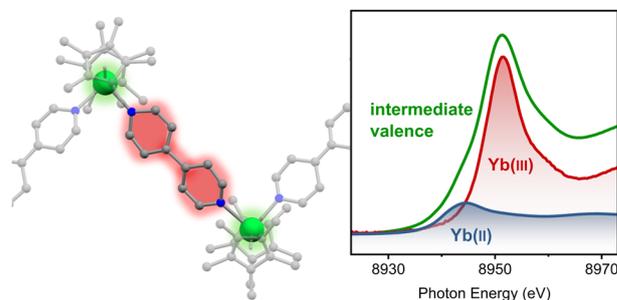


## COMMUNICATIONS

14999

**4f-intermediate valence in an ytterbium–bipyridine coordination solid**

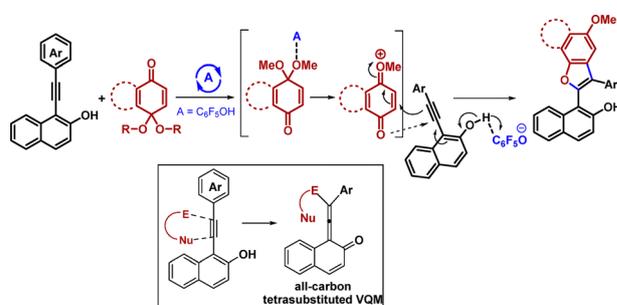
Evgeniia Luneva, Maja A. Dunstan,\* Frédéric Aribot, Nathan J. Yutronkie, Joseph E. McPeak, Andrei Rogalev, Grégory Nocton and Kasper S. Pedersen\*



15003

**Divergent coupling of *ortho*-alkynynaphthols and *p*-quinone monoketals through a Michael addition/intramolecular annulation cascade to access benzofuryl  $\beta$ -naphthols**

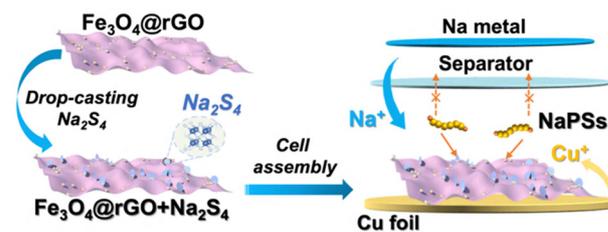
Fathima Begum, Haripriya Bhumannagari, Sridhar Balasubramanian and Kiranmai Nayani\*



15007

**Bifunctional artificial sodium polysulfide mediators boosting the sodium storage performance of the Fe<sub>3</sub>O<sub>4</sub> anode**

Peng Mei,\* Tong Li, Yuchen Yang, Haocun Ba and Shaozhan Huang\*



15011

**Iridium catalyzed intramolecular cyclization of allyl alcohol-indole hybrids: rapid access to photoluminescent 5*H*-benzo[*b*]carbazoles**

Gaurav Jaiswal and Subhas Chandra Pan\*

