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



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

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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

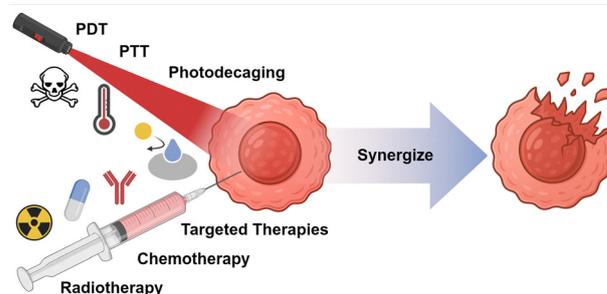


HIGHLIGHTS

14757

Synergistic effects of combining phototherapeutics with traditional treatment modalities in oncology

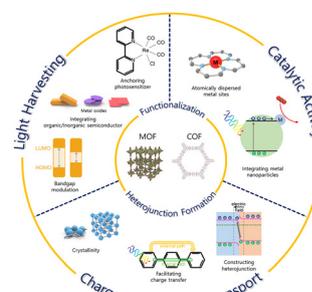
Flavia Kradolfer, Caroline Maake and Bernhard Spingler*



14773

Advancing metal–organic frameworks and covalent organic frameworks for photocatalytic CO₂ reduction

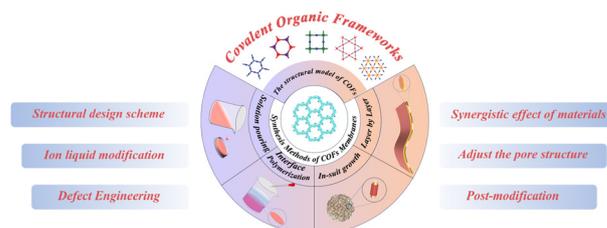
Jeewon Bu, Woo Seok Cheon, Hyojung Kim,* Myoung Hwan Oh* and Ho Won Jang*



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Covalent organic framework membranes for CO₂ separation: recent advances and challenges

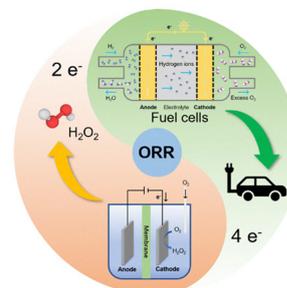
Zeyang Di, Wenjun Su, Shumin Li, Suyue Zhong, Weimin Liu* and Jian Li*



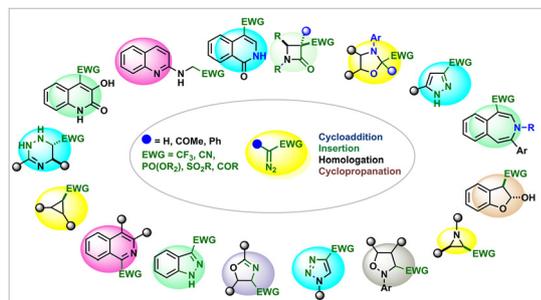
14814

Recent advances in oxygen reduction reaction catalysis under neutral conditions

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



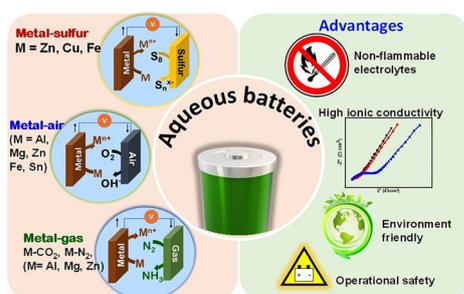
14823



Harnessing the power of α -diazo compounds: emerging strategies and expanding applications

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

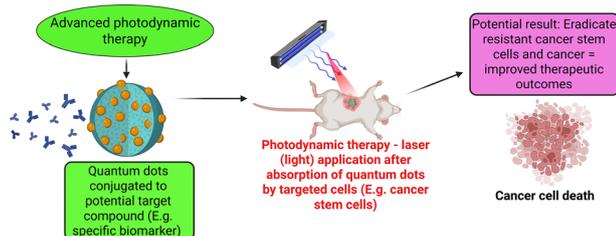
14843



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

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

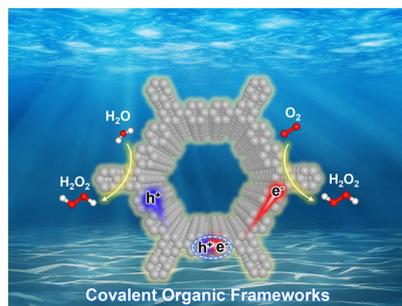
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The role of quantum dots in enhancing the therapeutic targeting of cancer stem cells

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*

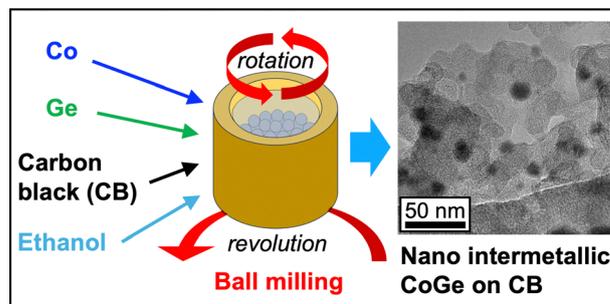


COMMUNICATIONS

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

Atsuto Furuse and Takayuki Kojima*



14907

Di- π -methane rearrangement in 1-phosphabarrelenes: formation and reactivity of an unprecedented 2-phosphasemibullvalene

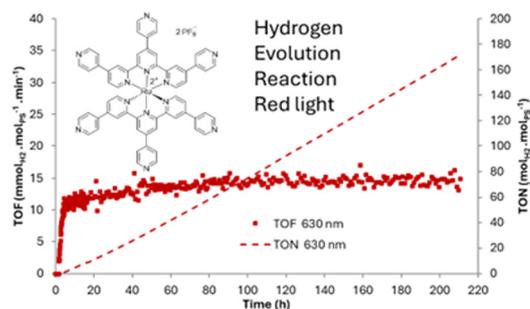
Leo Steffen, Lilian S. Szych, Yannick J. Franzke, Richard O. Kopp, Moritz J. Ernst, Manuela Weber and Christian Müller*



14911

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

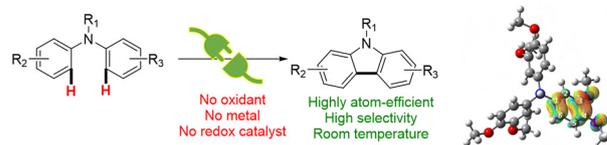
Gabriel M. Mercier, Elodie Rousset, Ilyes Oubaha, Kamalika Bandyopadhyay, Amlan K. Pal, Ilaria Ciofini, Lise-Marie Chamoreau, Valérie Marvaud* and Garry S. Hanan*



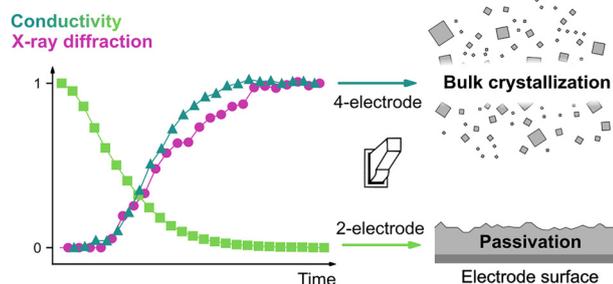
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Electrochemical dehydrogenative intramolecular C–C coupling for expedient carbazole synthesis

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



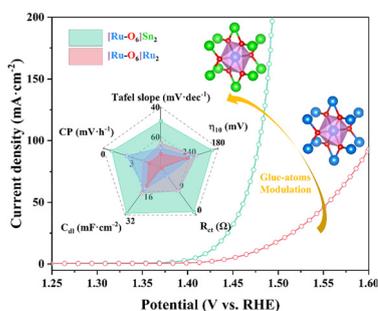
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Multi-modal impedance and X-ray characterization enables simultaneous detection of bulk and interfacial crystallization

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*

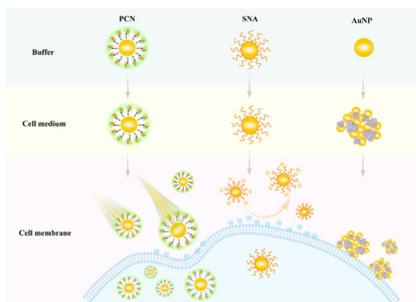
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Facile oxidative amination with imidazole and L-histidine coordinated cobaloximes

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 CS₂ and epoxides

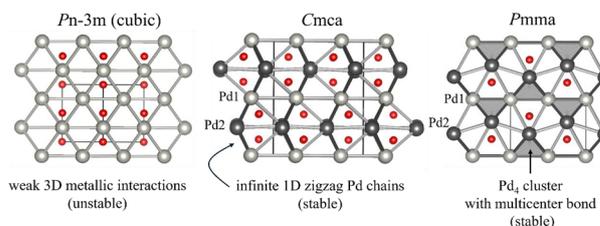
Mahesh Samanta, Tapas Mahata and Manish Bhattacharjee*



14939

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

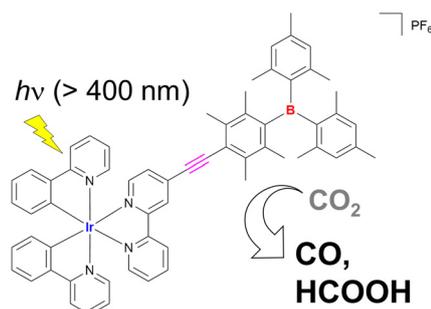
Diana Fabušová, Mariana Derzsi* and Kamil Tokár



14943

Covalently linked triarylborane–iridium(III) complex as a photocatalyst for CO₂ reduction

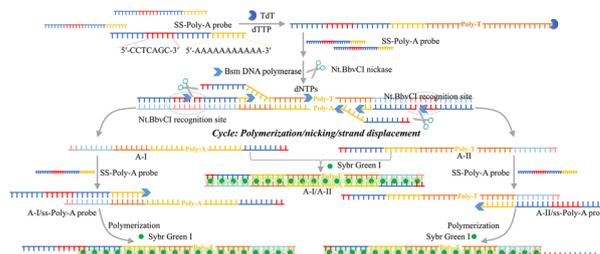
Ryo Fukumoto, Takuya Yokoo, Eri Sakuda,* Kenichiro Omoto, Shinnosuke Horiuchi, Yasuhiro Arikawa and Keisuke Umakoshi*



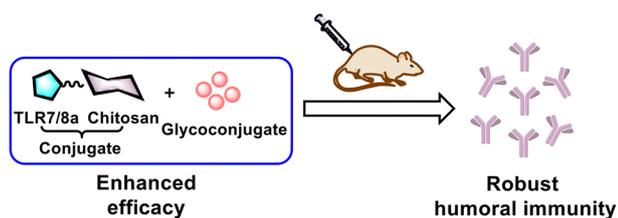
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Self-propagating amplification with a ss-polyadenine probe enables label-free detection of terminal deoxynucleotidyl transferase

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



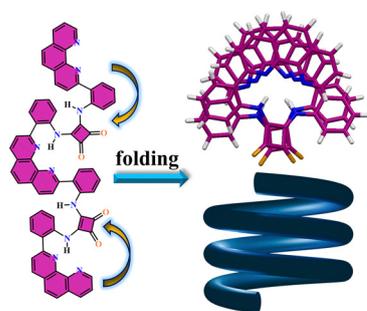
14951



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*

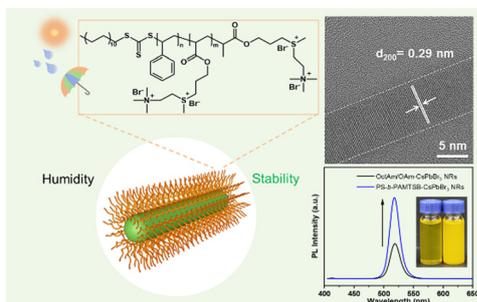
14959



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*

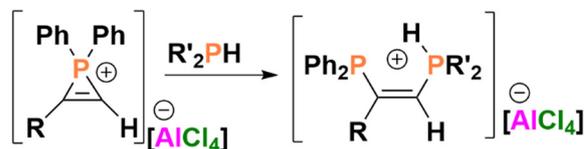


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A facile route to *cis*-olefin-linked phosphino-phosphonium salts of the form: $[\text{Ph}_2\text{PC}(\text{R})\text{C}(\text{H})\text{P}(\text{R}')_2\text{H}][\text{AlCl}_4]$

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

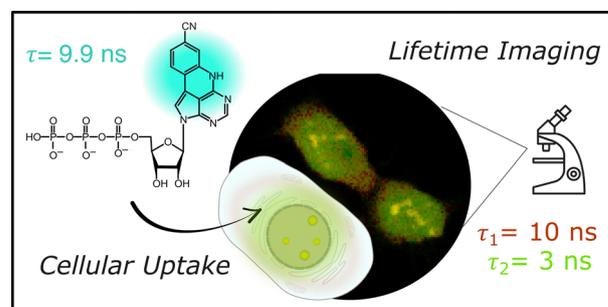


$\text{R}' = t\text{Bu}, \text{Cy}, \text{Mes}$
 $\text{R} = t\text{Bu}, \text{Me}_3\text{Si}, p\text{-tol}, p\text{-BrC}_6\text{H}_4$

14971

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

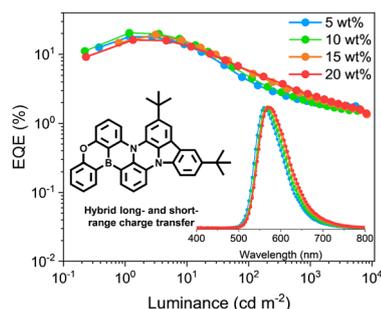
Pauline Pfeiffer, Niusha Bagheri, Chen Qian, Jerker Widengren and L. Marcus Wilhelmsson*



14975

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

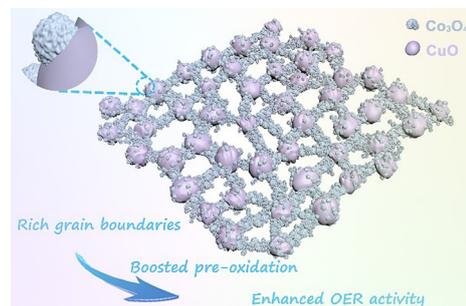
Ji-Hua Tan, Xiao-Long Liu, Yao-Zu Su, Longjiang Xing, Yanping Huo, Jia-Xiong Chen,* Zujin Zhao* and Wen-Cheng Chen*



14979

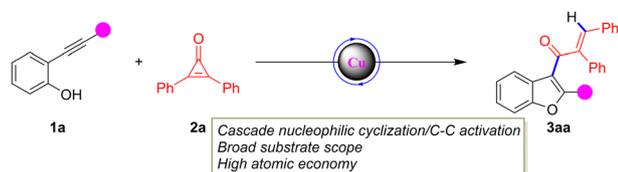
Grain boundary-engineered porous $\text{CuO}/\text{Co}_3\text{O}_4$ heterostructure as a pre-catalyst for enhanced oxygen evolution

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



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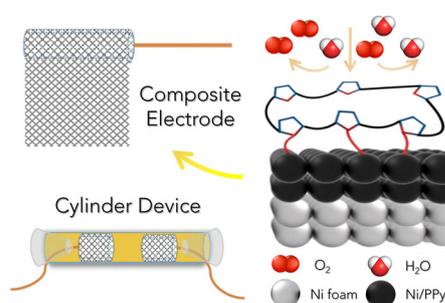
14983



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*

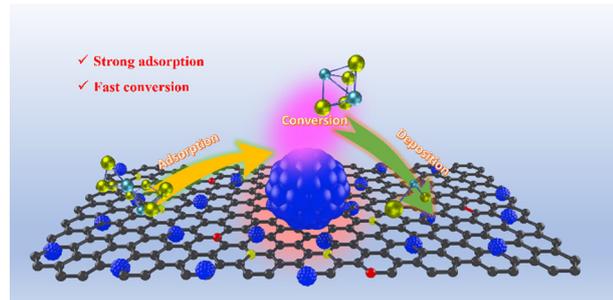
14987



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*

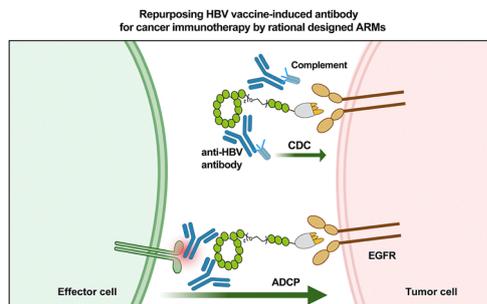
14991



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*

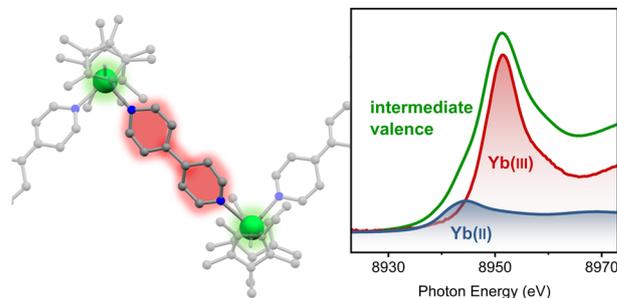


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14999

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

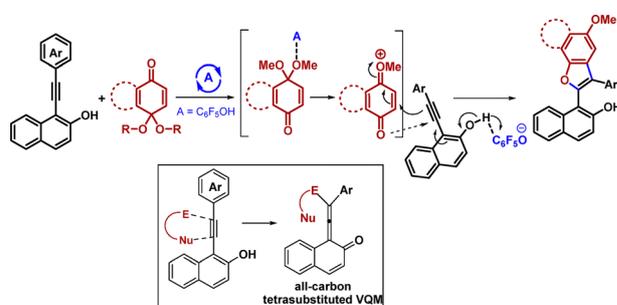
Evgeniia Luneva, Maja A. Dunstan,* Frédéric Aribot, Nathan J. Yutronkie, Joseph E. McPeak, Andrei Rogalev, Grégory Nocton and Kasper S. Pedersen*



15003

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

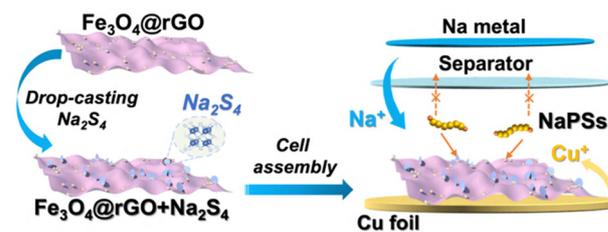
Fathima Begum, Haripriya Bhumannagari, Sridhar Balasubramanian and Kiranmai Nayani*



15007

Bifunctional artificial sodium polysulfide mediators boosting the sodium storage performance of the Fe₃O₄ anode

Peng Mei,* Tong Li, Yuchen Yang, Haocun Ba and Shaozhuan 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*

