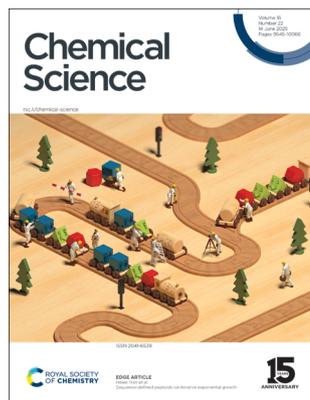


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ISSN 2041-6539 CODEN CSHCBM 16(22) 9545–10066 (2025)



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See Helen Tran *et al.*, pp. 9638–9647. Image reproduced by permission of Abigail Clapperton, Ernest Tse and Helen Tran from *Chem. Sci.*, 2025, **16**, 9638.



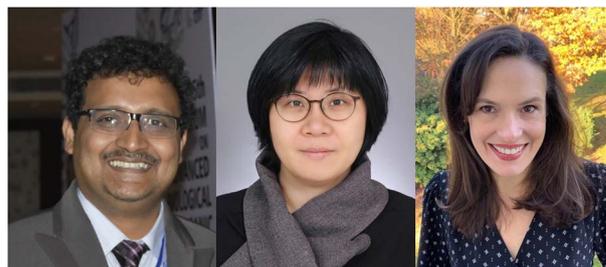
Inside cover
See Brad S. Pierce, Hannah S. Shafaat, Gayan B. Wijeratne *et al.*, pp. 9648–9661. Image reproduced by permission of Samith Jayawardana from *Chem. Sci.*, 2025, **16**, 9648.

EDITORIAL

9561

Introduction to the spotlight collection on bioinorganic chemistry

Abhishek Dey, Mi Hee Lim and Serena DeBeer

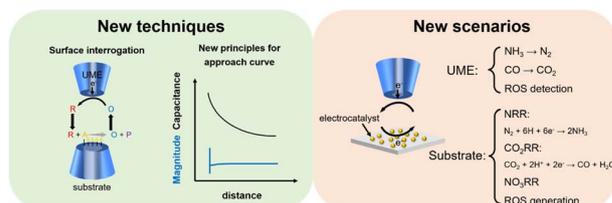


PERSPECTIVES

9564

Emerging techniques and scenarios of scanning electrochemical microscopy for the characterization of electrocatalytic reactions

Jinming Xu, Ran Chen,* Juanxian Song, Songqin Liu, Yanfei Shen and Yuanjian Zhang



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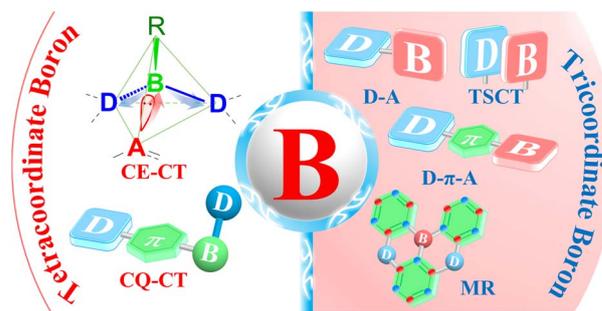


PERSPECTIVES

9577

Rethinking boron's role in intramolecular charge transfer: from an acceptor to a donor–acceptor regulator

Jiaqi Dong, Lingjuan Chen and Deng-Tao Yang*

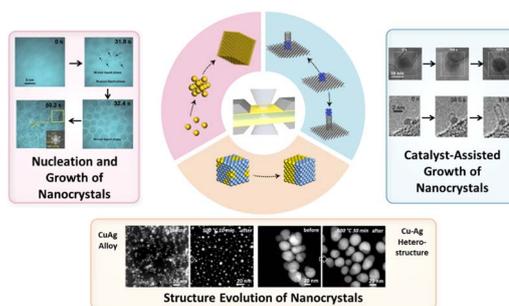


REVIEW

9604

In situ transmission electron microscopy characterization and manipulation of the morphology, composition and phase evolution of nanomaterials under microenvironmental conditions

Na Li, Xinyang Li, Tian Wang, Bo Wen, Zicheng Yin, Jie Feng, Shengchun Yang,* Yawei Yang,* Guorui Yang and Shujiang Ding*

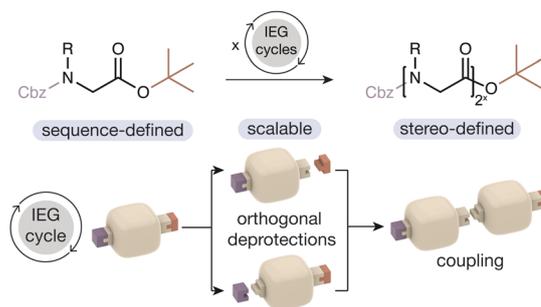


EDGE ARTICLES

9638

Sequence-defined peptoids *via* iterative exponential growth

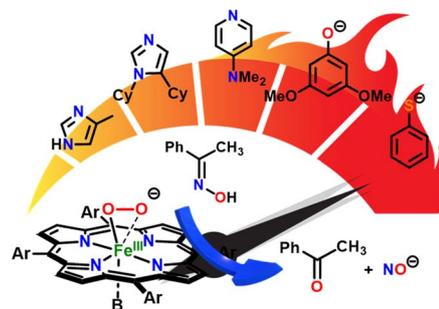
Abigail M. Clapperton, Christine Hood and Helen Tran*



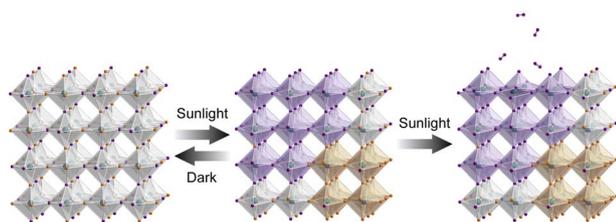
9648

Modulation of heme peroxo nucleophilicities with axial ligands reveal key insights into the mechanistic landscape of nitric oxide synthase

Shanuk Rajapakse, Yuri Lee, Samith B. Jayawardana, Joshua Helms, Pritam Mondal, Akhil Singh, Brad S. Pierce,* Hannah S. Shafaat* and Gayan B. Wijeratne*



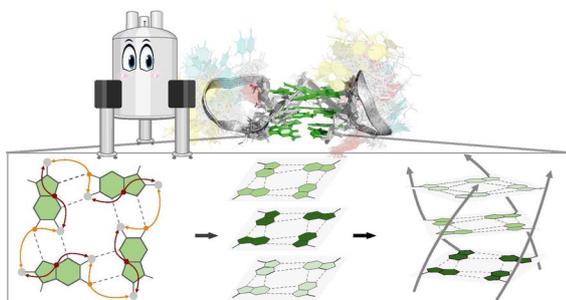
9662



Evidence for I₂ loss from the perovskite–gas interface upon light-induced halide segregation

Michael Lee, Julian A. Vigil, Zhiqiao Jiang and Hemamala I. Karunadasa*

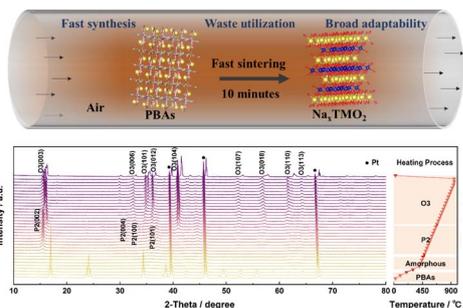
9669



Elucidating the solution structure of the monomolecular *BCL2* RNA G-quadruplex: a new robust NMR assignment approach

Zenghui Wang, Carla Ferreira Rodrigues, Simon Jurt, Alicia Domínguez-Martín, Silke Johannsen* and Roland K. O. Sigel*

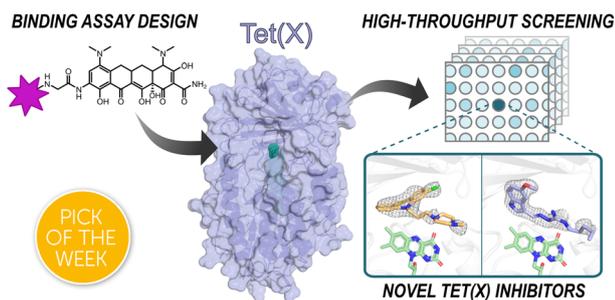
9679



A universal strategy for bridging Prussian blue analogues and sodium layered oxide cathodes: direct fast conversion, dynamic structural evolution, and sodium storage mechanisms

Hong-Wei Li, Jingqiang Wang,* Jing Yu, Jia-Yang Li, Yan-Fang Zhu,* Huanhuan Dong, Zhijia Zhang,* Yong Jiang, Shi-Xue Dou and Yao Xiao*

9691



Binding assays enable discovery of Tet(X) inhibitors that combat tetracycline destructase resistance

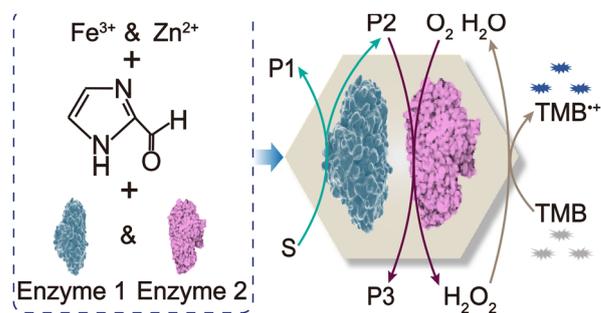
Matthew J. Beech, Edmond C. Toma, Helen G. Smith, Maria M. Trush, Jit H. J. Ang, Mei Y. Wong, Chung H. J. Wong, Hafiz S. Ali, Zakia Butt, Viha Goel, Fernanda Duarte, Alistair J. M. Farley, Timothy R. Walsh and Christopher J. Schofield*



9705

Enzyme-loaded Fe³⁺-doped ZIF-90 particles as catalytic bioreactor hybrids for operating catalytic cascades

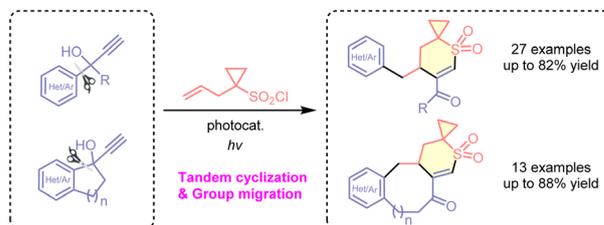
Jin Wang, Yunlong Qin, Raanan Carmieli, Vitaly Gutkin, Eli Pikarsky, Zhen Zhang,* Xinghua Chen* and Itamar Willner*



9715

Access to spirocyclic vinyl sulfones via radical cyclization and functional group migration

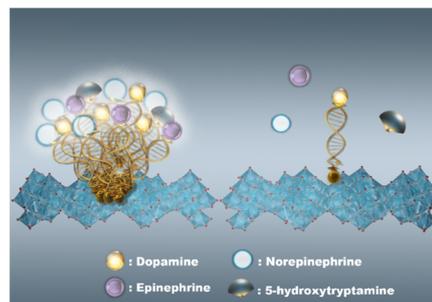
Shan Yang, Yasu Chen and Chen Zhu*



9720

Aptamer single-molecule dispersion on single-atom anchoring sites for high-selectivity *in vivo* detection

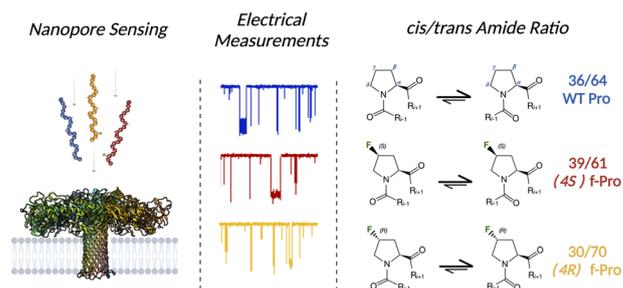
Jing Huang, Shiting Gu, Xue Zhou, Yibin Liu and Zhonghai Zhang*



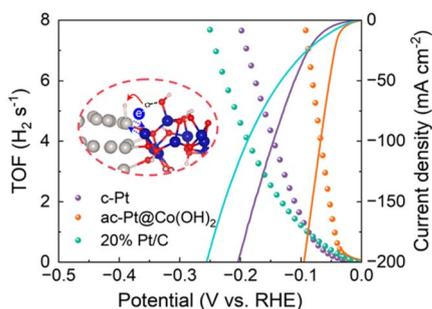
9730

Single-molecule nanopore sensing of proline *cis/trans* amide isomers

Luca Iesu, Mariam Sai, Vladimir Torbeev, Bruno Kieffer,* Juan Pelta* and Benjamin Cressiot*



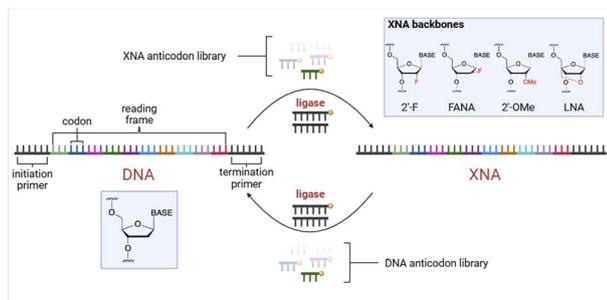
9739



Electron rearrangement at the crystalline–amorphous heterogeneous interface boosts alkaline hydrogen production

Meihuan Liu, Yuke Gu, Hui Su,^{*} Xuanzhi Liu, Juan Luo, Pengfei Tan,^{*} Feng Liu and Jun Pan^{*}

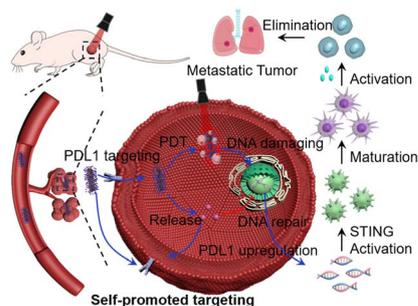
9749



Ligase-catalyzed transcription and reverse-transcription of XNA-containing nucleic acid polymers using T3 DNA ligase

Natalie Khamissi, Christopher Korfmann, Areeba Chaudhry and Ryan Hili^{*}

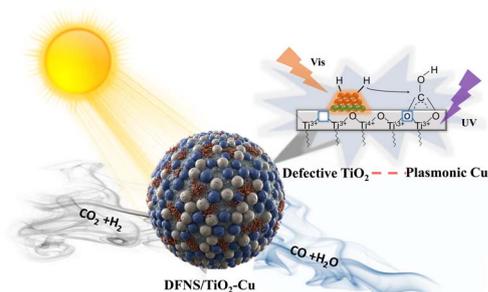
9756



Self-promoted tumor-targeting nanomedicine activates STING-driven antitumor immunity via photodynamic DNA damage and PARP inhibition

Baixue Yu, Wei Zhang, Zhouchuan Shao, Xiayun Chen, Yi Cen, Yibin Liu, Ying Chen, Xinxuan Li, Ziqi Liang, Shiyong Li^{*} and Xiaoyuan Chen^{*}

9766



Synthesis of synergistic catalysts: integrating defects, SMSI, and plasmonic effects for enhanced photocatalytic CO₂ reduction

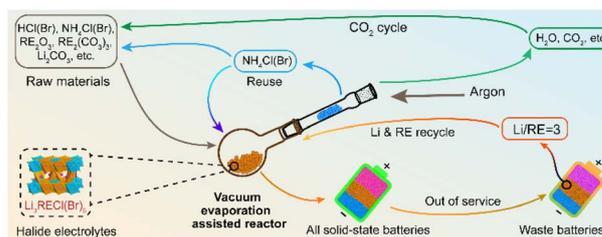
Rajesh Belgamwar, Charvi Singhvi, Gunjan Sharma, Vinod K. Paidi, Pieter Glatzel, Seiji Yamazoe, Pradip Sarawade and Vivek Polshettiwar^{*}



9785

Vacuum evaporation-assisted reaction: sustainable solution for application of rare earth-based halide solid-state electrolytes

Zhichao Zeng, Xiaomeng Shi, Hongtu Zhang and Yaping Du*

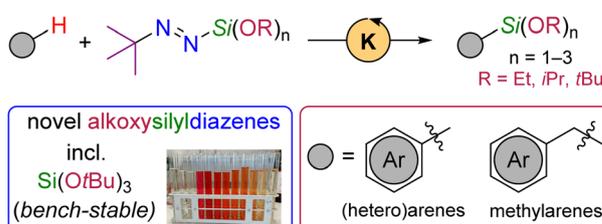


9794

Catalytic alkoxylation of C–H bonds with *tert*-butyl-substituted alkoxydiazenes

Lamine Saadi, Loïc Valade and Clément Chauvier*

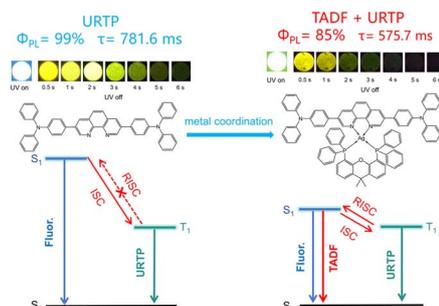
Catalytic alkoxylation of C–H bonds:



9802

Achieving dual emission of thermally activated delayed fluorescence and ultralong room-temperature phosphorescence by controlling excited state dynamics through metal coordination

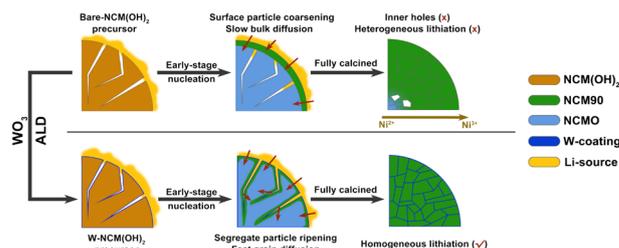
Xian-Bao Cai, Dong Liang, Deng-Chao Zhang, Ji-Hui Jia, Xiao-Yuan Wu and Can-Zhong Lu*



9809

Enabling uniform lithiation in solid-state synthesis by preventing pre-matured surface grain coarsening through grain boundary engineering

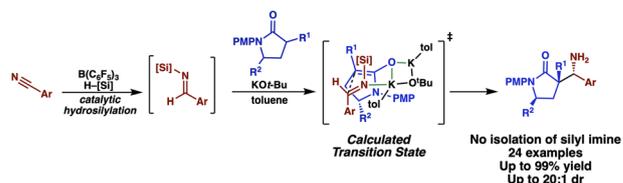
Yifan Wu, Xincan Cai, Weiyi Lin, Yingdong Deng, Qing Zhang, Haoyuan Li, Pu Yan, Guohui Zhong and Jin Xie*



9863

Potassium *tert*-butoxide mediated stereoselective/direct Mannich reaction of α -substituted- γ -lactams with *in situ* generated aryl *N*-silyl imines

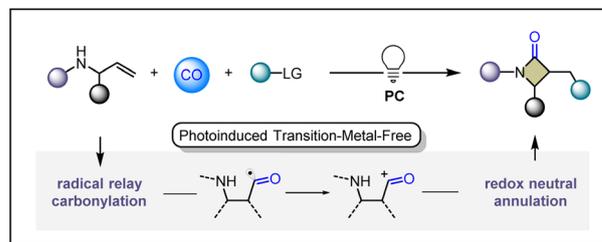
Tyler D. Casselman, Mithun C. Madhusudhanan, Binh Khanh Mai, Peng Liu and Brian M. Stoltz



9872

Photoinduced carbonylative annulation access to β -lactams

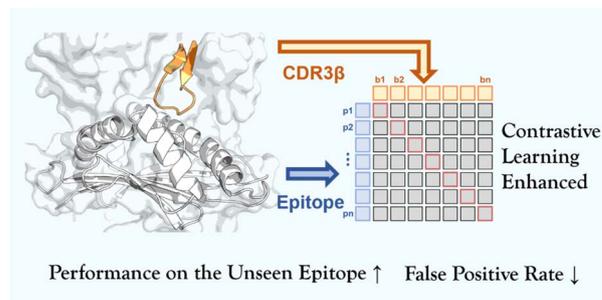
Yuanrui Wang, Xin Qi, Zhi-Peng Bao and Xiao-Feng Wu*



9881

TRAP: a contrastive learning-enhanced framework for robust TCR-pMHC binding prediction with improved generalizability

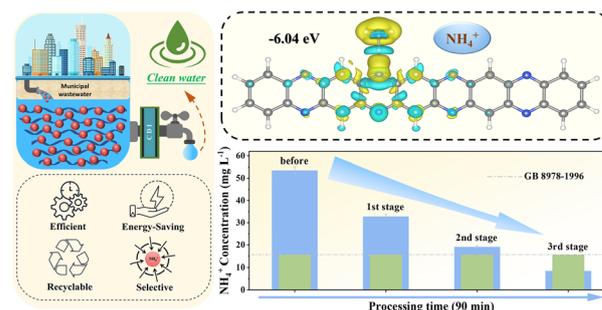
Jingxuan Ge, Jike Wang, Qing Ye, Liqiang Pan, Yu Kang, Chao Shen, Yafeng Deng, Chang-Yu Hsieh* and Tingjun Hou*



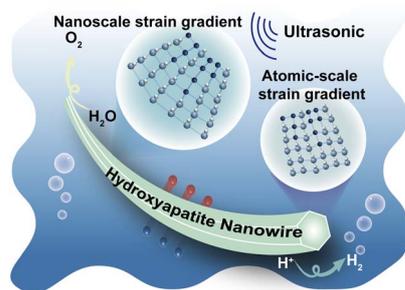
9895

An electron-delocalized sp^2 -N hybridized organic electrode enables sustainable and high-efficiency electrochemical ammonium removal

Haoyuan Qiu, Minjie Shi,* Peipei Zhang, Yueheng Tao, Xinyue Zhang, Jun Yang, Jingxin Zhao* and Huan Pang*



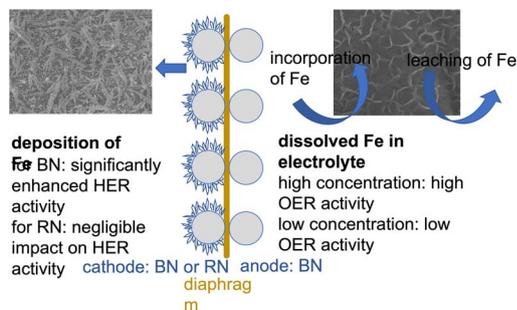
9905



Boosting hydrogen evolution via flexoelectric catalysis in gradient F-doped hydroxyapatite nanowires

Yucheng Zhang, Jiawei Huang, Lei Jiang, Jun Qiang, Zhouyang Zhang, Zhanfeng Liu, Yi Liu, Tingfang Tian,* Zhao Wang* and Linfeng Fei*

9913

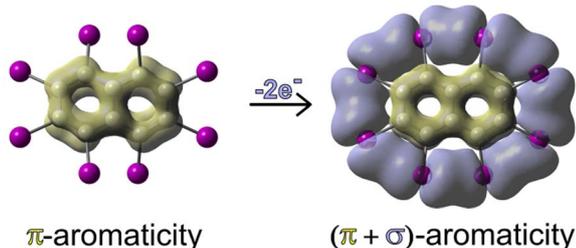


Dynamic and interconnected influence of dissolved iron on the performance of alkaline water electrolysis

Fubiao Di, Cong Chen, Junxia Shen, Zhihe Wei, Wen Dong, Yang Peng, Ronglei Fan,* Mingrong Shen* and Pierre-Yves Olu*

9920

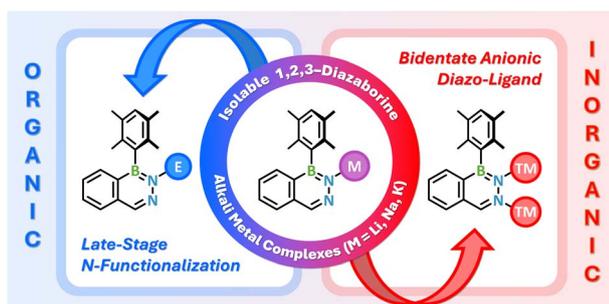
Induced double aromaticity



Oxidation-induced double aromaticity in periodo-polycyclic hydrocarbons

Slađana Đorđević, Jordi Poater, Miquel Solà* and Slavko Radenković*

9934



Alkali metal salts of 1,2,3-benzodiazaborines: platforms for late-stage N-functionalization and metal complexation

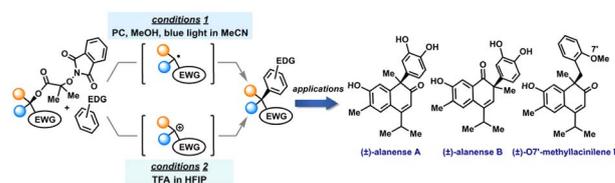
Leonie Wüst, Lea Scheuring, Tim Wellnitz, Krzysztof Radacki and Holger Braunschweig*



9943

α -N-phthalimido-oxy isobutyrate-mediated deoxygenative arylation: total synthesis of alanenses A and B

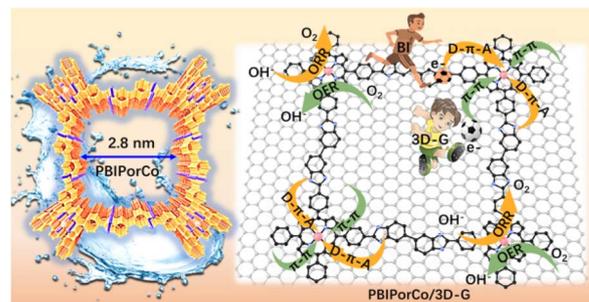
Young Eum Hyun, Jeonguk Kweon, Thi Hieu Linh Phan, Dongwook Kim and Sunkyu Han*



9951

A novel fully conjugated COF adorned on 3D-G to boost the "D- π -A" electron regulation in oxygen catalysis performance

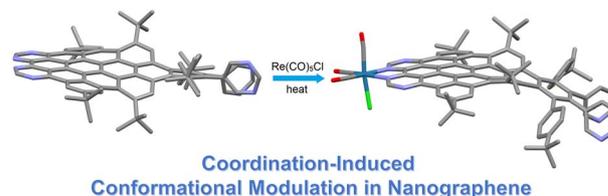
Yinggang Sun, Wenjie Duan, Jigang Wang, Peng Sun, Yanqiong Zhuang and Zhongfang Li*



9966

Rhenium coordination-induced conformational modulation in nitrogen-doped nanographene

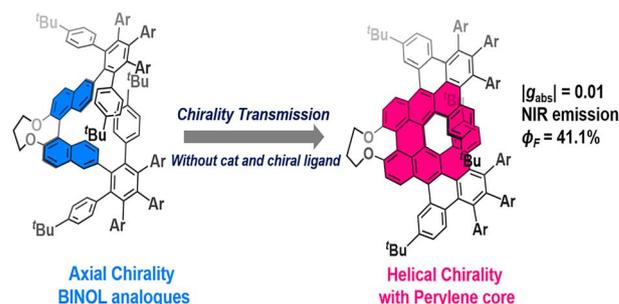
Eldhose V. Varghese, Yi-Hung Liu, Hsing-Yin Chen, Chien-Hung Li and Chia-Hsiang Chen*



9978

Enantiomer-enriched π -extended helicenes with a perylene core from binaphthol: axial-to-helical chirality transfer with a stepwise Scholl reaction mechanism

Zhi-Ao Li, Ke-Lin Zhu, Nai-Te Yao, Jiaqi Liang, Yi-Ling Shang, Ye Zhang and Han-Yuan Gong*



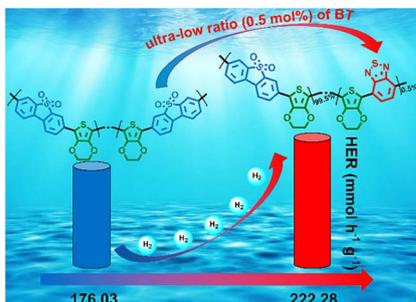
9988



Multiple stimulus modulated organic crystal polymorphs with tunable luminescence behavior

Qian Zhou, Mingxia Feng, Caihong Shi, Mengqiu Qian, Xiurong Ma, Runying He, Xian Meng, Yonggang Shi, Qiue Cao and Liyan Zheng*

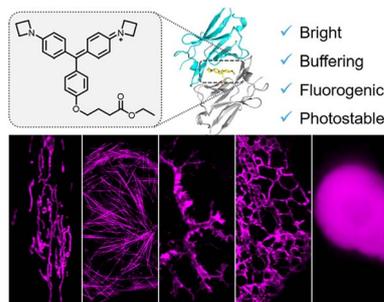
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Ultrahigh photocatalytic hydrogen evolution of linear conjugated terpolymers enabled by an ultra-low ratio of the benzothiadiazole monomer

Zheng-Hui Xie, Gang Ye, Hao Gong, Pachaiyappan Murugan, Can Lang, Yi-Fan Dai, Kai Yang and Shi-Yong Liu*

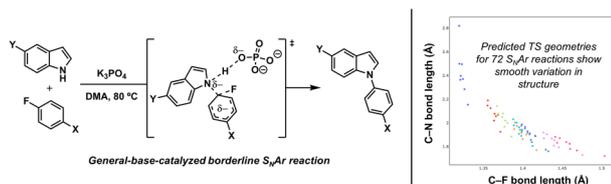
10010



Azetidinyl Malachite Green: a superior fluorogen-activating protein probe for live-cell and dynamic SIM imaging

Fei Deng, Xiangning Fang, Qinglong Qiao,* Guoli Han, Lu Miao, Shuangshuang Long and Zhaochao Xu*

10019



A mechanistic continuum of nucleophilic aromatic substitution reactions with azole nucleophiles

Harrison W. Toll, Xiaoyi Zhang, Tong Gao, Guilherme Dal Poggetto, Mikhail Reibarkh, Joshua J. Lee, Katherine J. Yang, Eugene E. Kwan* and Amanda K. Turek*

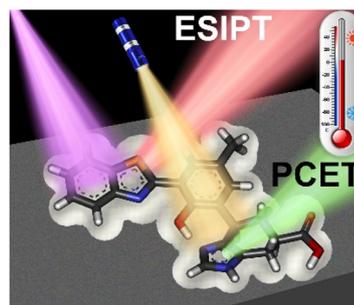


EDGE ARTICLES

10030

An excitation-wavelength-dependent organic photoluminescent molecule with high quantum yield integrating both ESIPT and PCET mechanisms

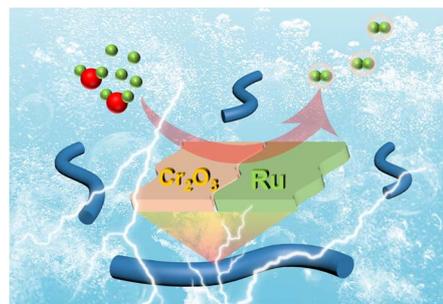
Mengyuan Song, Meng Liu, Xue Zhang, Haijuan Qin, Jinglu Sun, Juanjuan Wang,* Qian Peng, Zhiwei Zhao, Guohui Zhao, Xianchang Yan, Yongxin Chang, Yahui Zhang, Dongdong Wang, Junhui Wang,* Jianzhang Zhao* and Guangyan Qing*



10042

Interfacial engineering of a nanofibrous Ru/Cr₂O₃ heterojunction for efficient alkaline/acid-universal hydrogen evolution at the ampere level

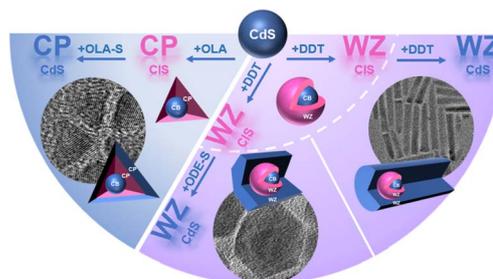
Xianqiang Yu, Mingze Xia, Ruikai Qi, Yuezhu Wang, Mingbin Gao,* Mengxiao Zhong* and Xiaofeng Lu*



10051

Colloidal CuInS₂ quantum well nanostructures with II–VI semiconductors as barrier layers

Yue Qin, Xuerong Song, Hanzhuang Zhang, Wenyu Ji* and Jiajia Ning*

Colloidal CdS/CuInS₂/CdS Quantum Well Nanostructures

CORRECTIONS

10061

Correction: Absolute standard hydrogen electrode potential and redox potentials of atoms and molecules: machine learning aided first principles calculations

Ryosuke Jinnouchi,* Ferenc Karsai and Georg Kresse



CORRECTIONS

10063

Correction: Uncovering diverse reactivity of NHCs with diazoalkane: C–H activation, C=C bond formation, and access to N-heterocyclic methylenehydrazine

Kajal Balayan, Himanshu Sharma, Kumar Vanka, Rajesh G. Gonnade* and Sakya S. Sen*

