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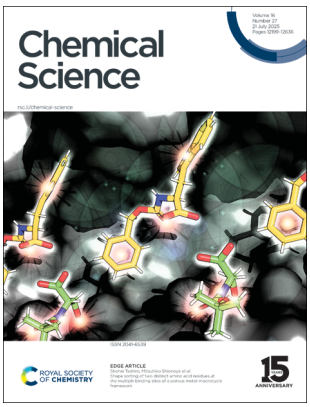
Cover
See Zhao Chen, Shouzhi Pu *et al.*, pp. 12293–12302. Image reproduced by permission of Zhao Chen from *Chem. Sci.*, 2025, **16**, 12293.



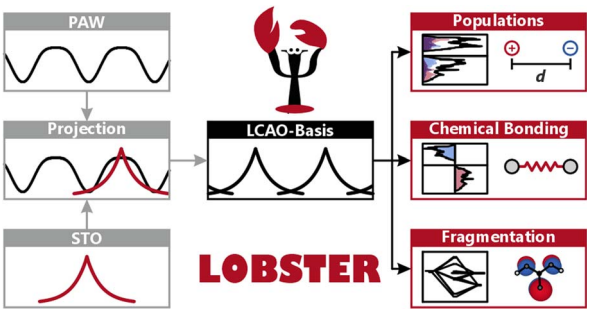
Inside cover
See Shohei Tashiro, Mitsuhiko Shionoya *et al.*, pp. 12303–12308. Image reproduced by permission of Shohei Tashiro from *Chem. Sci.*, 2025, **16**, 12303.

PERSPECTIVES

12212

Orbital-based bonding analysis in solids

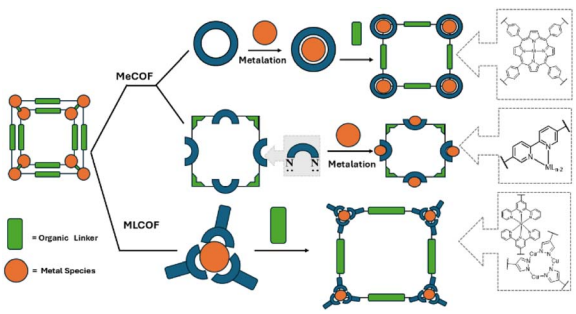
Peter C. Müller, Linda S. Reitz, David Hemker and Richard Dronskowski*



12227

Structural determination of MCOFs: status, challenges and perspectives

A. Boran, R. González-Gómez, S. Hennessey and P. Farràs*



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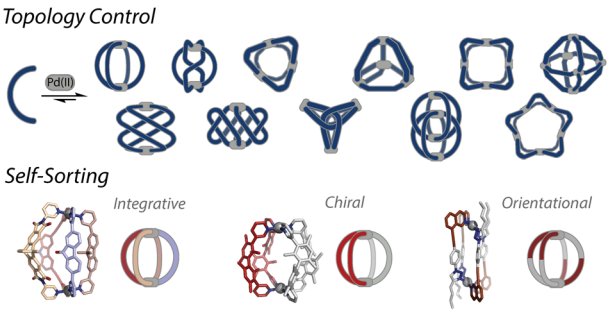
REVIEWS

12242

Topological variety and self-sorting in homo- and heteroleptic Pd_nL_{2n} metallo-supramolecular assemblies

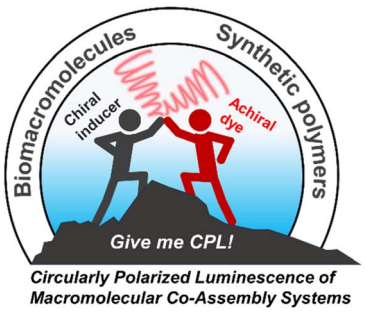
Laura Neukirch and Guido H. Clever*



12277

Circularly polarized luminescence of macromolecular co-assembly systems

Ming-Jun Ji, Meng Li* and Chuan-Feng Chen*

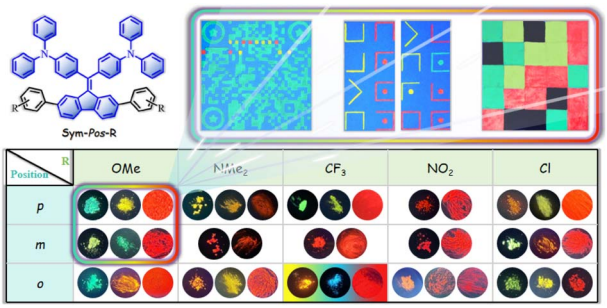


EDGE ARTICLES

12293

Molecular engineering of bis(triphenylamine)-modified fluorene luminophore for immensely enriching anisotropic force-triggered high-contrast tricolor fluorescent molecular switches library

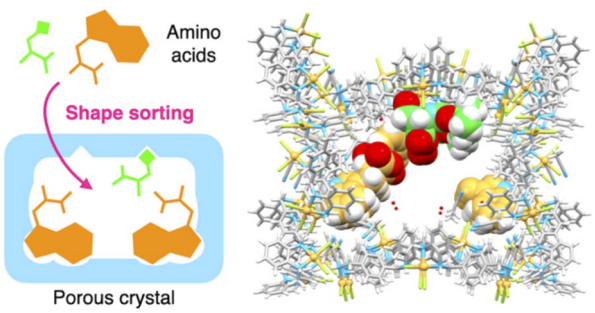
Zhao Chen,* Yijie Zou, Ya Yin, Diandian Deng, Yue Yang, Congbin Fan, Shouzhi Pu* and Gang Liu



12303

Shape sorting of two distinct amino acid residues at the multiple binding sites of a porous metal-macrocycle framework

Shohei Tashiro,* Kosuke Nakata, Ryunosuke Hayashi and Mitsuhiko Shionoya*



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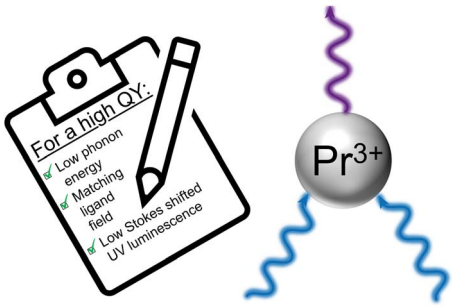
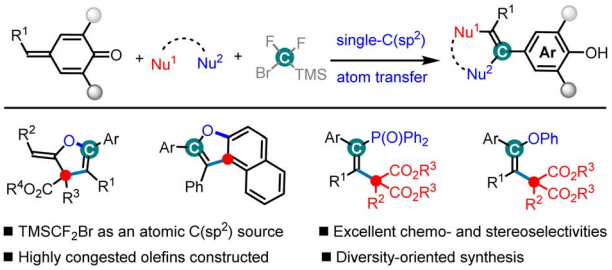


Design principles for (efficient) excited-state absorption-based blue-to-UV upconversion phosphors with Pr^{3+}

Tom Förster, Josefine Reifenberger, Tugce Moumin, Justus Helmbold, Željka Antić, Miroslav D. Dramićanin and Markus Suta*

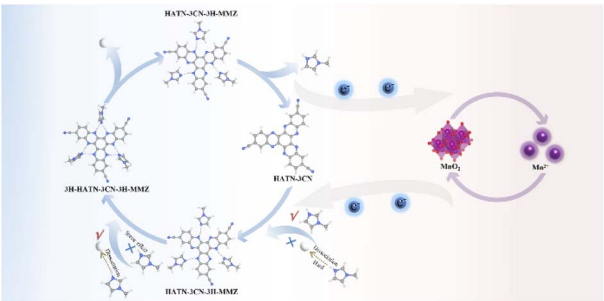
12324



Single-carbon-atom transfer to *para*-quinone methides from $TMSCF_2Br$

Ruikang Sun, Pei Zhang, Yong Yan, Jie Zhu, Qirui Chen, Chi Yang, Aijun Lin, Xuanyi Li, Shang Gao* and Hequan Yao*

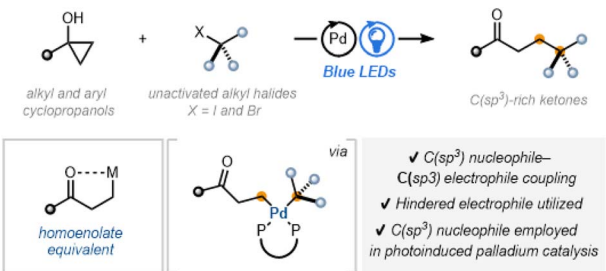
12332



High-capacity aqueous imidazolium-ion batteries enabled by MMZ-H^+/H^+ co-intercalation in a near neutral electrolyte

Haiping Yu, Rui Li, Zhihui Wang, Bei Wang, Mengxiao Li, Guoqing Zhao, Xinyu Wang, Xiaorong Yan, Yuxin Hao, Huige Ma, Jingru Liu, Mingjun Hu* and Jun Yang*

12343



Employment of a $C(sp^3)$-based nucleophile for photoinduced palladium-catalysed cross-coupling

Beom Ho Kim, Byeongdo Roh, Dong Jun Kim and Hong Geun Lee*

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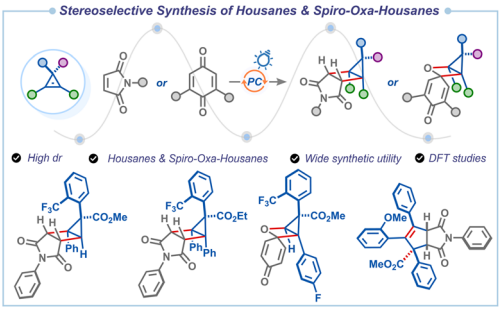
12350

Highly stereoselective synthesis of polysubstituted housanes and spiro-oxa-housanes: application and mechanistic insights

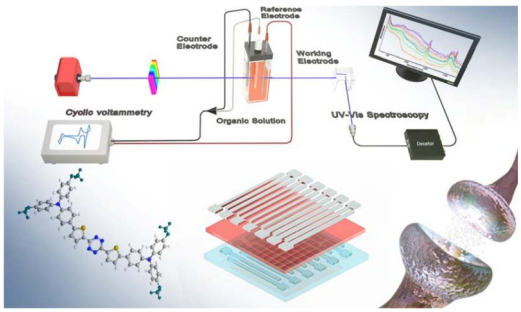
Abdur Rouf Samim Mondal, Nakul Abhay Bapat, Harshita Mishra and Durga Prasad Hari*



12362

Unveiling the switching mechanism of robust tetrazine-based memristive nociceptors *via* a spectroelectrochemical approach

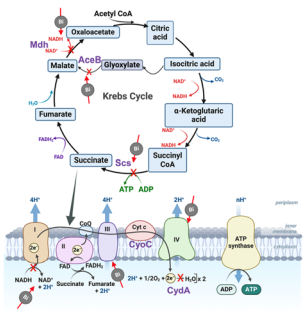
JiYu Zhao, Kun Liu, Wei Zeng, Zhuo Chen, Yifan Zheng, Zherui Zhao, Wen-Min Zhong, Su-Ting Han, Guanglong Ding,* Ye Zhou* and Xiaojun Peng*



12372

Bismuth drug eradicates multi-drug resistant *Burkholderia cepacia* complex *via* aerobic respiration

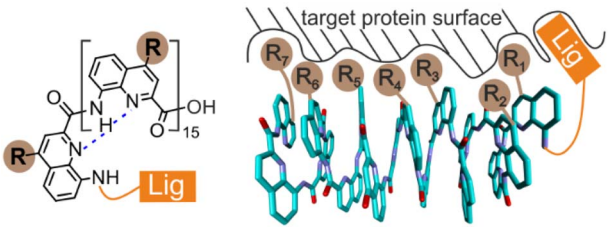
Jingru Li, Haibo Wang, Peng Gao, Runming Wang, Chun-Lung Chan, Richard Yi-Tsun Kao, Hongyan Li* and Hongzhe Sun*



12385

Structure-based design of an aromatic helical foldamer–protein interface

Lingfei Wang, Céline Douat, Johannes Sigl, Post Sai Reddy, Lucile Fischer, Béatrice Langlois d'Estaintot, Zhiwei Liu, Vojislava Pophristic, Yuwei Yang, Yingkai Zhang and Ivan Huc*



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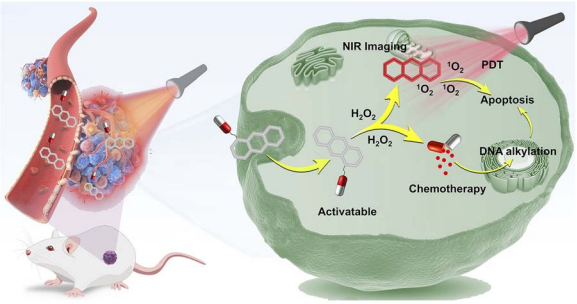
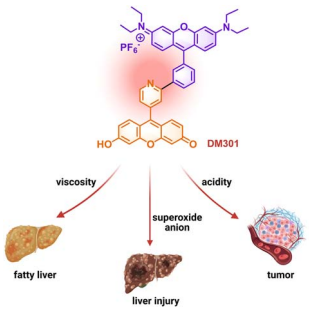


An activatable unimolecular phototheranostic agent for synergistic chemo-photodynamic therapy

Jinliang Han, Kang Li, Mingwang Yang,* Jiangli Fan* and Xiaojun Peng

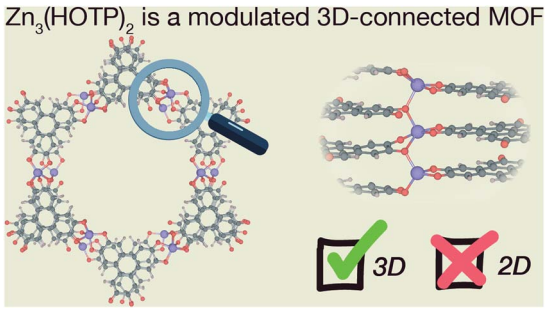
12408



A versatile NIR probe for multifunctional detection of tumors, fatty liver, and liver injury

Qihang Ding, Jiqiang Liu, Xinyue Zhang, Jun Li, Keith Man-Chung Wong, Amit Sharma, Pengfei Zhang, Quli Fan, Chao Yin,* Hui Zhou,* Tony D. James* and Jong Seung Kim*

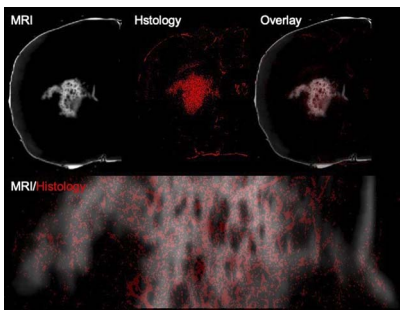
12416



High-resolution structure of $Zn_3(HOTP)_2$ (HOTP = hexaoxidotriphenylene), a three-dimensional conductive MOF

Kimberly J. Zhang, Tianyang Chen, Julius J. Oppenheim, Luming Yang, Lukáš Palatinus, Peter Müller, Troy Van Voorhis and Mircea Dincă*

12421



Ultra-high resolution magnetic resonance microscopy of *in situ* gadolinium gold nanoparticle-labeled cells in the rat brain

Alena Kisel, Minrui Luo, Matthew D. Bailey, Harman Ghuman, Matthew Rotz, Vinícius P. Campos, Marcelo A. C. Vieira, T. Kevin Hitchens, Thomas J. Meade* and Michel Modo*

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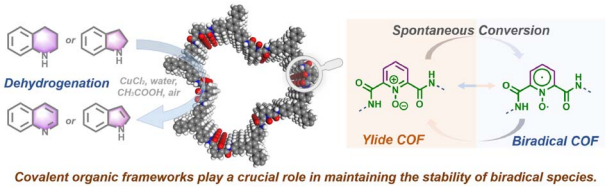
12439

Spontaneous conversion of pyridine *N*-oxide ylide covalent organic framework (COF) into biradical COF as an efficient catalyst in catalytic dehydrogenation of nitrogen heterocycles

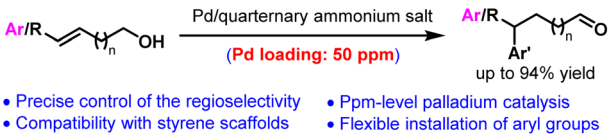
Wenying Ai,* Jiawei Zou, Zhenfeng Cao, Kun Cui, Jianbing Gu, Lina Du, Xin Peng, Mingli Jiao,* Tao Shen* and Lingbo Qu*



12449

Ppm level palladium catalyzed regioselective remote arylation of alkenyl alcohols

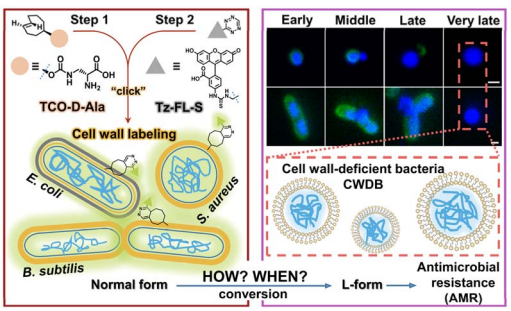
Chong Liu, Ling Wang and Haibo Ge



12455

Bioorthogonal probes for L-form conversion visualization and insights into antimicrobial resistance

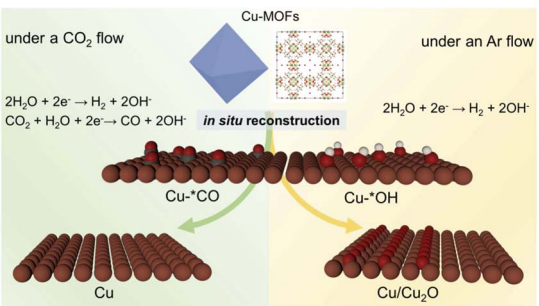
Yunzhe Tao, Yongwei Feng, Yu Peng, Xiang Wang, Xiangchuan Meng, Youjun Xu, Xiaowan Han,* Qingyang Zhang* and Hai-Yu Hu*



12467

Atmosphere-directed reconstruction of Cu-based metal–organic frameworks toward efficient CO_2 electroreduction

Jiye Feng, Danni Shi, Fei Wang, Yiming Zou, Weicheng Li, Wenbiao Zhang, Huaijun Lin, Yuying Meng and Qingsheng Gao*



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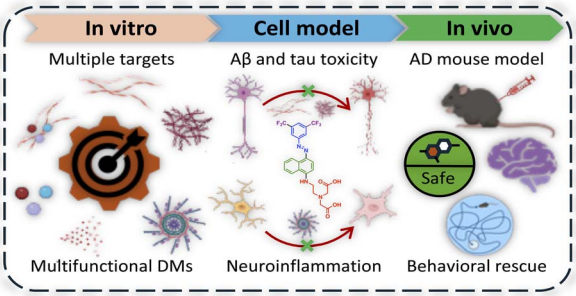
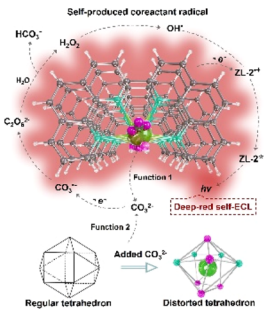


Combating multiple aetiologies of Alzheimer's disease to rescue behavioural deficits

Madhu Ramesh, Chenikkayala Balachandra, Ashish Kumar, Sourav Samanta and Thimmaiah Govindaraju*

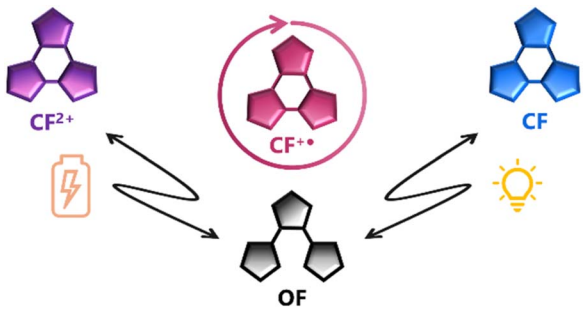
12493



Self-supplying coreactant radical and structural distortion induced by carbonate ligand in metal–organic framework for anomalous deep-red Self-electrochemiluminescence

Lu Zhao, Zhenjie Xu, Xianzhen Song,* Caifeng Ding* and Huangxian Ju*

12499



Three-state molecular switch based on terarylene photo- or redox-induced reversible isomerisation

Nicolò Baggi,* Anne Léaustic, Jean-Noël Rebilly, François Mavré, Eric Rivière, Christian Herrero, François Maurel and Pei Yu*

12510

Carbene-stabilized 6,12-diboraanthanthrenes: unveiling the multistage redox properties of polycyclic aromatic hydrocarbons featuring electron-rich boron centers

Yuyi Wang, Tao Shi, Ling Yue, Guijiang Zhou* and Bochao Su*

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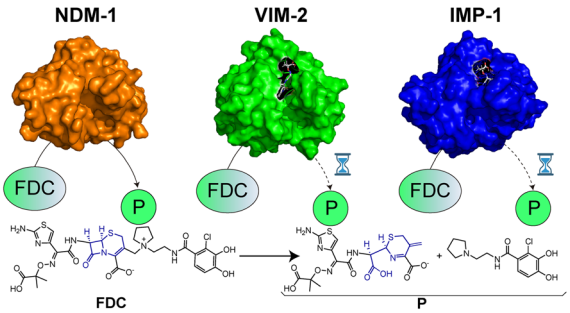
12519

Cefiderocol "under siege"? Understanding the rise of NDM-mediated resistance to novel agents

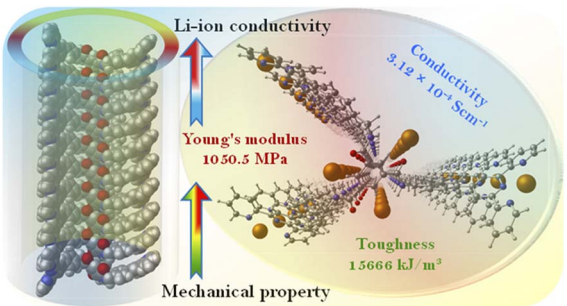
Brenda A. Warecki, Pablo E. Tomatis, María F. Mojica, Christopher R. Bethel, Magdalena Rodríguez Saravia, Salvador I. Drusin, Daisuke Ono, Guillermo Bahr, Krisztina Papp-Wallace, Pranita D. Tamma, Diego M. Moreno, Graciela Mahler, Robert A. Bonomo* and Alejandro J. Vila*



12534

Lithium-ion conducting self-assembled organic nanowires: optimizing mechanical performance and ionic conductivity through programmable supramolecular interactions

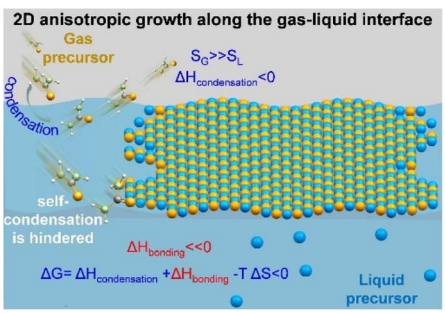
Vishwakarma Ravikumar Ramlal, Sam Sankar Selvasundarasekar, Akanksha Singh, Jenil Ankola, Rabindranath Lo,* Subrata Kundu* and Amal Kumar Mandal*



12548

A general "gas–liquid" synthesis strategy towards centimeter-scale two-dimensional non-layered semiconductors

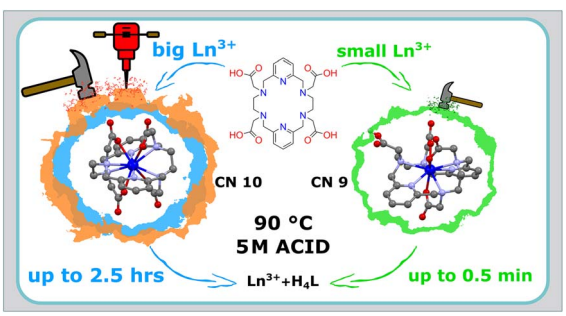
Jiahui Liu, Jiangbo Yuan, Hao Liu, Zhiyi Yuan, Baochuan Guo, Shaohui Li, Qiuhong Cui,* Qun Xu* and Cong Wei*



12558

Extraordinary kinetic inertness of lanthanide(III) complexes of pyridine-rigidified 18-membered hexaazamacrocycles with four acetate pendant arms

Jan Faltejsek, Peter Urbanovský, Vojtěch Kubíček, Jana Havlíčková, Ivana Císařová, Jan Kotek and Petr Hermann*



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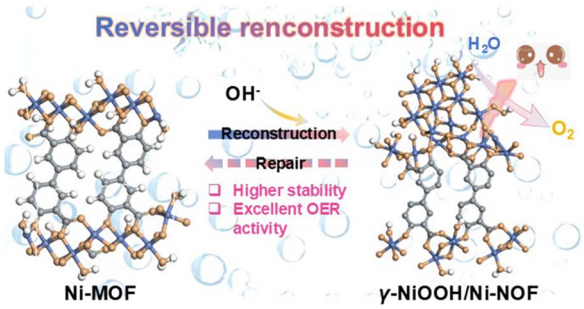
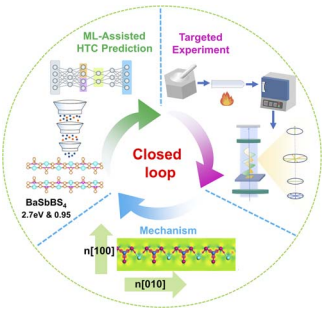


Reversible surface reconstruction of metal–organic frameworks for durable oxygen evolution reaction

Shulin Li, Zhaoxin Zhou, Jiahui Li, Yang Xiao, Ye Yuan, He Zhu, Fengchao Cui,* Xiaofei Jing* and Guangshan Zhu*

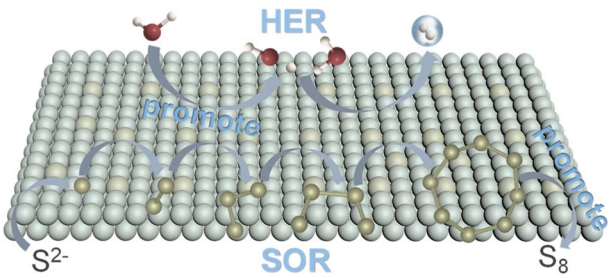
12577



$BaSbBS_4$: a record-high-performance birefringent crystal identified by a target-driven closed-loop strategy

Ming-Zhi Zhang, Yue Zhao, Chun-Li Hu* and Jiang-Gao Mao*

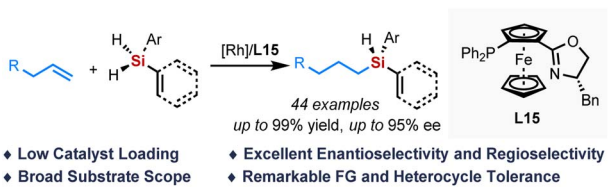
12587



Modulation of the electronic structure of nickel selenide *via* iron doping for energy-saving hydrogen production coupled with sulfion upgradation

Shuixiang Xie, Xiaojun Wang, Yuhuan Li, Shijie Liu, Jiahui Qian, Yuhan Zhang, Linling Jiang, Zhe Cao, Zhenhao Yan, Xiaoyu Wan, Zhaohang Yang, Longhua Zou,* Wei Zhang* and Rui-Qing Li*

12594



Rh-catalyzed enantioselective hydrosilylation of unactivated alkenes

Yichen Wu,* Hao-Yang Qian, Heng Zhang, Jian-Ye Zou, Qing-Yan Wu, Xiao-Xue Nie, Long Zheng, Qian Peng* and Peng Wang*

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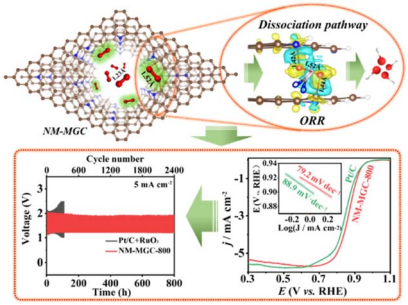
EDGE ARTICLES

12603

Multilayer graphene crystals with enhanced performances in oxygen reduction and zinc–air batteries *via* interlayer carbon promoted O═O bond dissociation

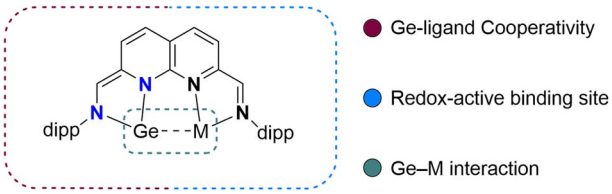
Yongfang Qu, Qian Tang, Dandan Wang, Bing He,* Yong Liu, Wei Chen, Guangtao Yu,* Boyuan Tang, Fujian Liu* and Liangti Qu*



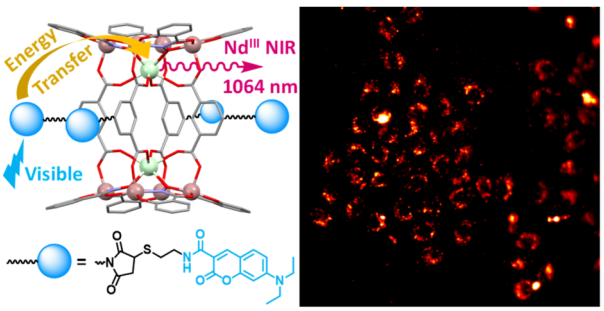
12613

An N-heterocyclic germylene with a versatile metal-binding pocket: insights into heterodinuclear bonding and reactivity

Errikos Kounalis, Rik Sieben, Léon Witteman, Martin Lutz, Marc-Etienne Moret* and Daniël L. J. Broere*



12623

Novel lanthanide(III)/gallium(III) metallacrowns with appended visible-absorbing organic sensitizers for molecular near-infrared imaging of living cells

Timothée Lathion, Julie Bourseguin, Svetlana V. Eliseeva,* Matthias Zeller, Stéphane Petoud* and Vincent L. Pecoraro*