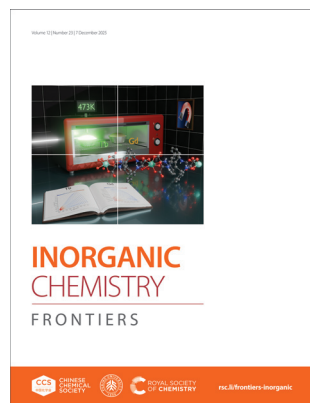


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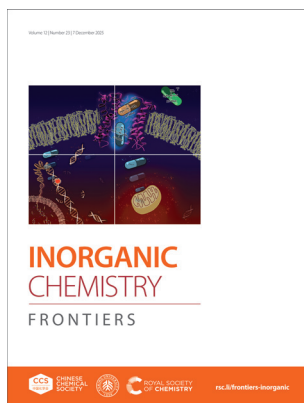
ISSN 2052-1553 CODEN ICFNAW 12(23) 7435–7908 (2025)



Cover

See Cynthia L. M. Pereira et al., pp. 7512–7528.

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Inside cover

See Michele Benedetti, Tiziana Marino et al., pp. 7529–7540.

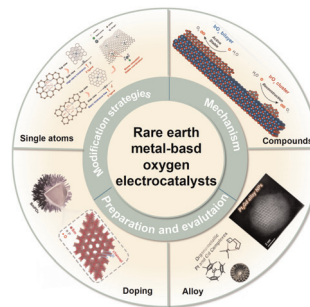
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REVIEWS

7449

Rare earth metal-based oxygen electrocatalysts: insights from mechanisms and designs to applications

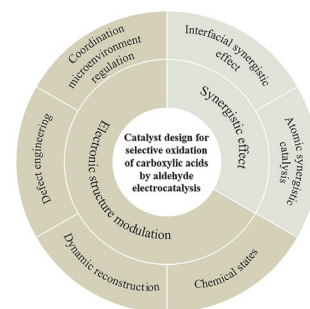
Haiyan Wang, Yifan Xia, Ruiteng Sun, Xiaobin Liu, Jianping Lai, Jingqi Chi* and Lei Wang*



7485

Catalyst design for electrochemical selective oxidation of aldehydes to carboxylic acids

Yanxue Chao, Jiani Han, Yaodong Yu, Jianping Lai* and Lei Wang*



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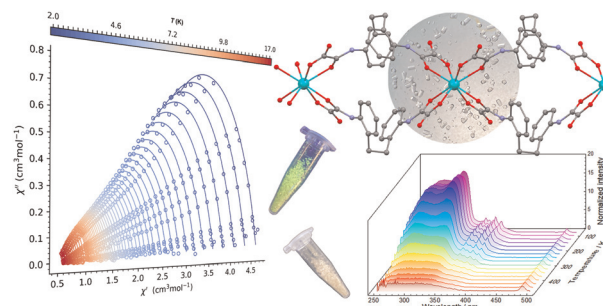
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7512

Reciprocating thermal behavior and thermometry studies of Tb³⁺- and Gd³⁺-oxamato single-ion magnets

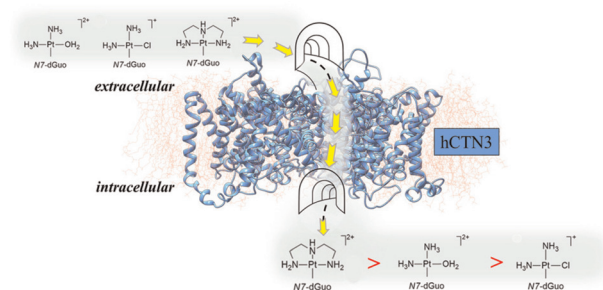
Cleber R. Araujo Junior, Luana M. Murad, Rafael V. Perrella, Willian X. C. Oliveira, Carlos B. Pinheiro, Thais F. Ramos, Patrícia S. O. Patricio, Emerson F. Pedroso, Wallace C. Nunes, Pablo R. T. Ribeiro, Diego Muraca, Fernando Fabris, Marcelo Knobel, Fernando A. Sigoli and Cynthia L. M. Pereira*



7529

Exploring the interactions of N7-platinated guanosines with the hCNT3 transporter: a molecular dynamics study

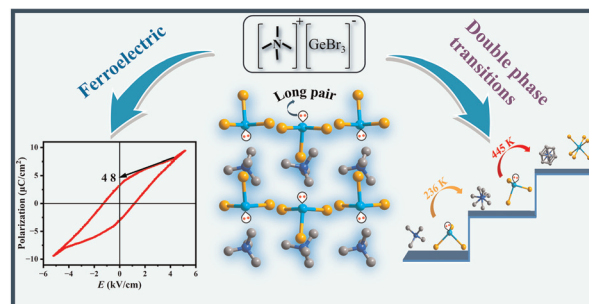
Giada Ciardullo, Federica de Castro, Alessia Dodaro, Mario Prejanò, Asjad Ali, Michele Benedetti,* Francesco P. Fanizzi and Tiziana Marino*



7541

A novel zero-dimensional germanium-based ferroelectric hybrid material with dual phase transitions

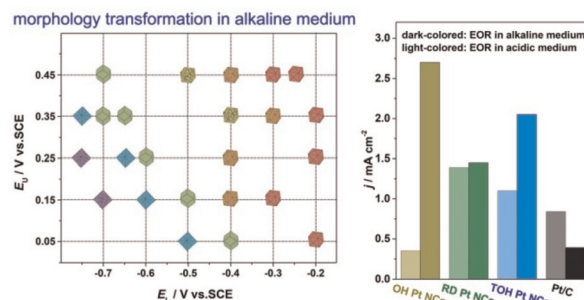
Kun Ding, Pei-Guo Liu, Yu-Lan Xie, Meng Qiang Li, Zhi-Long Li, Bo Zhuang, Jiu-Yang Liu, Jia-Xun Li, Ying Wang and Da-Wei Fu*



7548

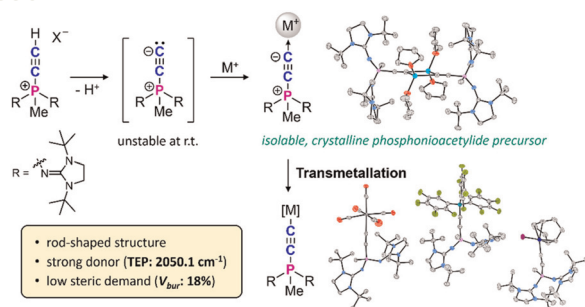
Morphological transformation of Pt nanocrystals by an electrochemical method in alkaline media and performance of ethanol electrooxidation

Jingxiao Tang, Na Tian,* Chi Xiao and Zhiyou Zhou



RESEARCH ARTICLES

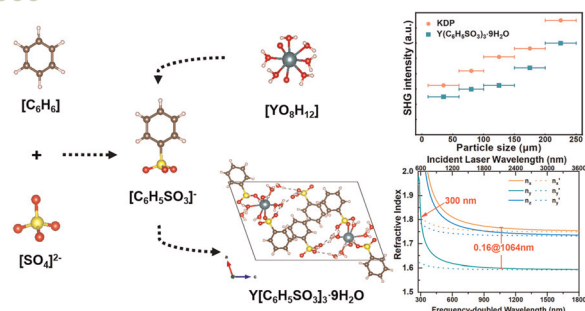
7556



Accessing phosphonioacetylide chemistry: isolable alkali metal precursors for rod-shaped carbon donor complexes

Franka Brylak, Pawel Löwe, Klaus Wurst, Stephan Hohloch and Fabian Dielmann*

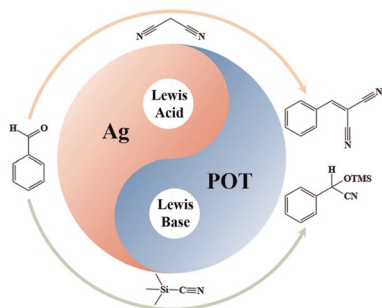
7566



Y(C₆H₅SO₃)₃·9H₂O: strategic integration of ligand substitution and π-conjugated group linkage in sulfates for enhanced ultraviolet nonlinear optical properties

Xiaodong Zhang, Bohui Xu, Deshuai Xiao, Xinyuan Zhang, Pifu Gong* and Zheshuai Lin*

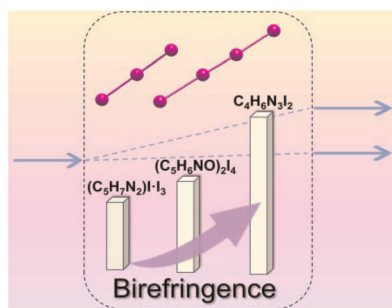
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High-nuclearity Ag-substituted tetrameric sandwich-type polyoxometalates for excellent catalytic performance in C–C bond formation

Yahao Sun, Minzhen Cai, Hanhan Chen, Pengtao Ma, Jingyang Niu* and Jingping Wang*

7581



Exploring ultra-high optical anisotropy in polyiodides

Mingye Han, Hongbo Huang, Siyu Li, Yan Xiao, Bingbing Zhang* and Ying Wang*

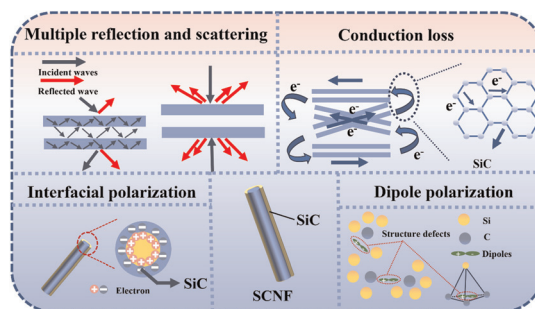


RESEARCH ARTICLES

7590

Constructing core–shell SiC@C nanofiber network structures to enhance conductive loss for efficient microwave absorption

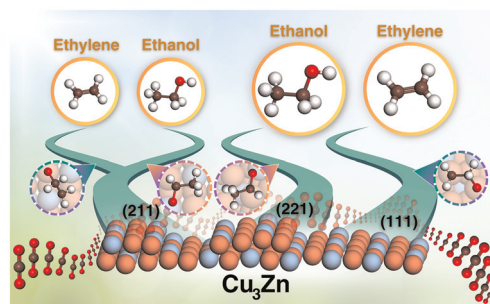
Yingzhi Jin, Congmin Fan,* Qiaoling Zhang, Qinchuan He and Yiqun Wang*



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Mechanistic insights into CO₂ reduction to C₂ products on Cu₃Zn surfaces: the role of stepped surfaces and Zn atoms

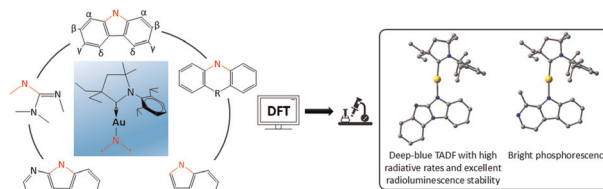
Jirapat Santatiwongchai, Pussana Hirunsit* and Sarawoot Impeng*



7615

Design rules and experimental validation of carbene–metal–amide luminophores: systematic modification of the amide ligand

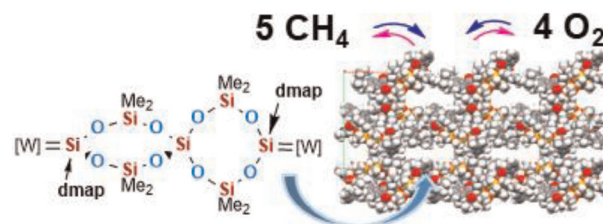
Nguyen Le Phuoc, Arun Kumar, Aliaksandr Baidak, Alexander S. Romanov* and Mikko Linnolahti*



7628

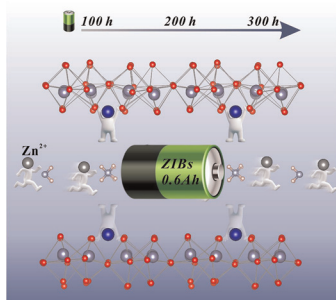
Siloxane-linked tungsten complexes form a flexible metal–organic framework: 1-D channel structure and gas adsorption property

Ryo Nakamura, Koichi Nagata, Takahiro Kawatsu, Kazuhiro Matsumoto,* Yumiko Nakajima, Takuji Ikeda, Shinya Takaishi, Wataru Kosaka, Hitoshi Miyasaka and Hisako Hashimoto*



RESEARCH ARTICLES

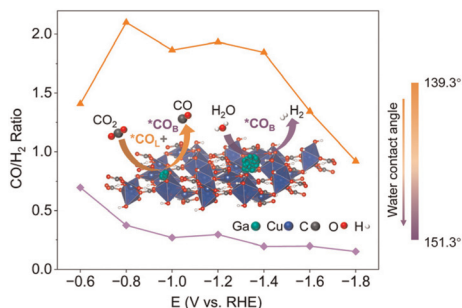
7637



Stabilizing $\text{NH}_4\text{V}_4\text{O}_{10}$ by Al-doping: boosting kinetics and ammonium retention for practical zinc-ion batteries

Yuqi Peng, Li'e Mo,* Weilin Yan, Lufan Liu, Xuejun Zhu, Yang Huang, Zhaoqian Li, Hong Zhang* and Linhua Hu*

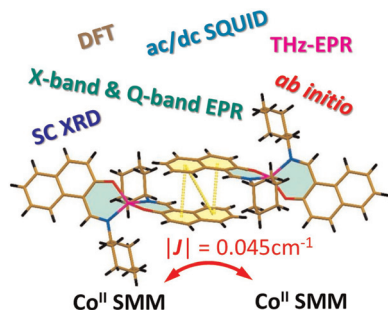
7648



Modulating the surface state of Cu catalysts by Ga doping enables tunable CO_2 electroreduction to syngas over a wide potential window

Jia-Huan Du, Ziwei Liu, Jinyun Liu, Jin-Yu Ye, Yingying Ge, Shanyong Chen, Yuting Zhang* and Xuehong Gu*

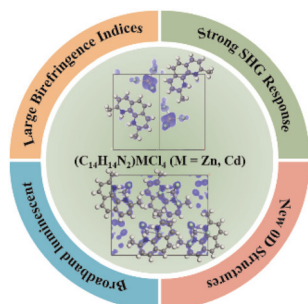
7656



Intermolecular exchange interaction in bis-(phenoxy Schiff base) Co(II) complexes: an in-depth insight into the magneto-structural nature of single-molecule magnets

Olga V. Minakova, Jędrzej Kobylarczyk, Elizaveta V. Panova, Mercedes Kukułka, Sergey L. Veber,* Karsten Holldack, Thomas Lohmiller, Radovan Herchel, Mariusz Mitoraj, Michael Bolte, Matvey V. Fedin, Damir A. Safin* and Robert Podgajny

7675



$(\text{C}_{14}\text{H}_{14}\text{N}_2)\text{MCl}_4$ ($\text{M} = \text{Zn}, \text{Cd}$): two hybrid metal halides exhibiting strong second harmonic generation responses, large birefringence, and broadband photoluminescence

Xinhui Li, Pifu Gong, Mingxing Chen, Shujuan Zhuang, Man Qi, Wenqiang Wang, Xinfang Wang,* Zhen Jia* and Mingjun Xia*



Extraordinarily enhanced rate and stability of Ni-rich cathodes through MXene coating

Figure 10 consists of two panels. The top panel displays Cyclic Voltammetry (CV) curves for NCM90 and NCM90@MXene composites with varying MXene content (1%, 3%, and 5% Ti₃C₂) at 25°C and a scan rate of 0.1 mV s⁻¹. The x-axis represents the potential from 2.7 to 4.5 V, and the y-axis represents the specific capacity in mAh g⁻¹. The bottom panel shows the cycle life of these materials over 100 cycles. The left y-axis is specific capacity (mAh g⁻¹), and the right y-axis is Coulombic efficiency (%). The legend indicates: NCM90 (grey circles), NCM90@Ti₃C₂ 1% (red circles), NCM90@Ti₃C₂ 3% (blue circles), and NCM90@Ti₃C₂ 5% (cyan circles). An inset diagram illustrates the NCM90@MXene structure, showing NCM90 particles coated with MXene layers, and highlights the benefits: Increased capacity, Interface stability, Structural stability, and Fast Li⁺ diffusion.

Oxygen-containing functional groups cooperate to boost electrochemical ORR selectivity to H₂O₂

The diagram illustrates the chemical modification of carbon nanotubes (CNTs). On the left, a bundle of CNTs-OH is shown, with a legend indicating that red spheres represent oxygen (O), black spheres represent carbon (C), and blue spheres represent hydrogen (H). A plus sign indicates a reaction with hydrogen peroxide (H₂O₂). A green arrow labeled "Oxidation" points to the right, where a bundle of O-CNTs is shown. A magnified view of the CNT surface on the right shows the conversion of hydroxyl groups (red and white spheres) to oxygen-containing functional groups (red and black spheres).

Schematic diagram of the synthesis of O-CNTs

Stereochemically active lone pair-induced large optical anisotropy in a novel infrared birefringent crystal Ba₂La₂Sb₄S₁₀(S₂)

CRYSTAL STRUCTURE

SCALP Effect

REFRACTIVE INDEX

$\Delta n = 0.53$ at 1064 nm

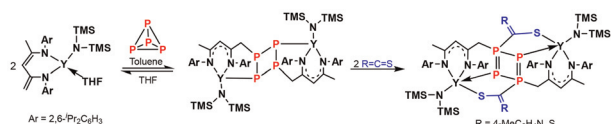
Wavelength (nm)

LARGE BIREFRINGENCE

High-efficiency Mn²⁺-rich phosphors toward wide color gamut LCDs and advanced X-ray imaging applications

RESEARCH ARTICLES

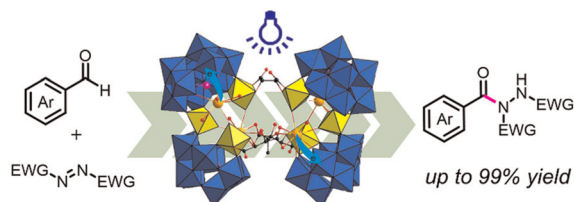
7725



Reversible formation of yttrium planar cyclo-P₄ clusters and their selective conversion: access to mixed P^V/P^{III} cyclo-P₄ units

Keyu Han, Qing You, Zihao Ye, Kunhua Li, Yunmeng Li, Sujiao Duan, Junliang Zhang,* Xigeng Zhou* and Jie Zhang*

7732

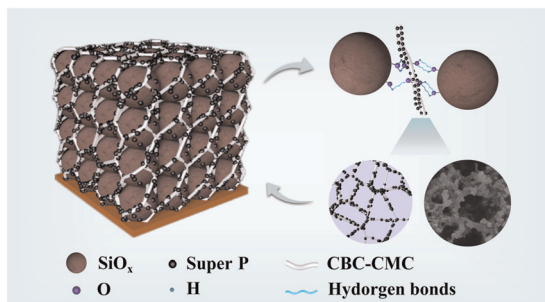


- Unique intramolecular Ce^{III}-to-POM (W^{VI}) charge transfer
- Visible-light promoted
- H₂O as solvent
- Reusable catalyst

Visible-light-induced C–N bond formation by Ce(III)-containing antimonotungstate with Ce-to-polyanion charge transfer

Yufeng Liu, Hanjin Shi, Miao Zhang, Haoqi Liu, Pengtao Ma* and Guoping Yang*

7739

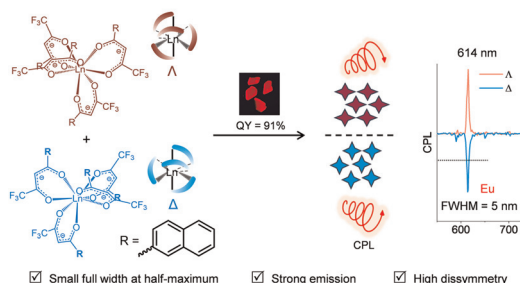


Interfacial regulation for constructing a robust grapevine-like conductive network within a silicon-based anode for high-performance lithium-ion batteries

Chuhan Zhou, Xiangxiang Wang, Kun Wang, Siying Li, Xingyu Sun, Zhouying Wu, Lina Wang, Chengdu Liang and Min Ling*

7752

Symmetry breaking achieving both ultra-narrowband and emissive CPL



Symmetry breaking of rare earth Eu(III) complexes with an achiral aromatic ligand: achieving strong emission and ultra-narrowband circularly polarized luminescence

Zhi Chen, Wenmin Xu, Chunhua Hu, Zhen Liu, Suwen Lin, Shaomeng Guo, Zhupin Chen, Mianling Huang, Zhen-Qiang Yu, Wei-Hong Zhu and Yue Wu*

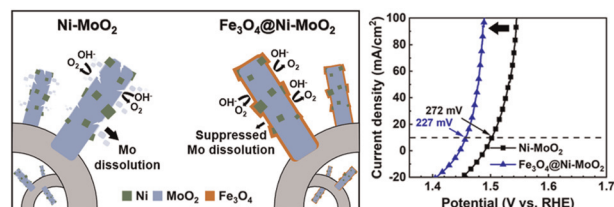


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Deposition of Fe_3O_4 overlayers on nickel-anchored molybdenum oxide for enhanced and stable oxygen evolution reaction in alkaline water electrolysis

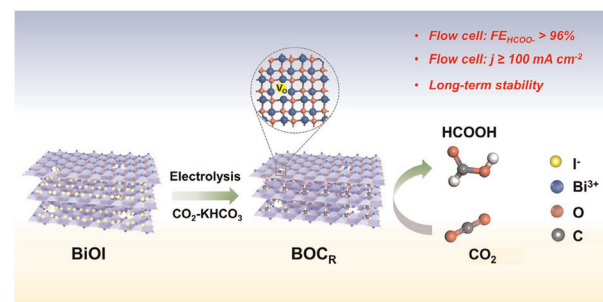
Kyeong Su Kim, Jaeho Byeon, Agni Raj Koirala, Hoyoung Kim,* Jinwoo Lee* and Doh C. Lee*



7775

In situ constructed oxygen vacancy-rich $\text{Bi}_2\text{O}_2\text{CO}_3$ nanosheets derived from BiOI for efficient electrochemical CO_2 reduction to formate

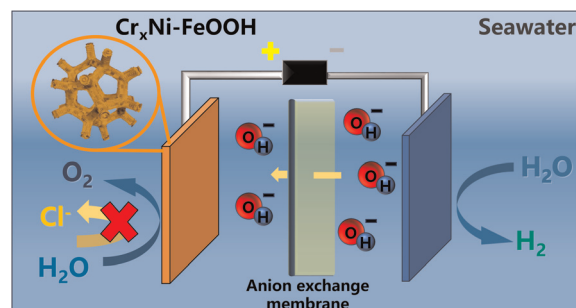
Jiaxin Li, Fan He, Ziye Cheng, Jiayi Chen, Haoran Ding, Xiao Zhang* and Zhifu Qi*



7784

A Cr-doped NiFeOOH catalyst with surface reconfiguration for chloride-resistant simulated seawater electrolysis in an anion-exchange membrane electrolyzer

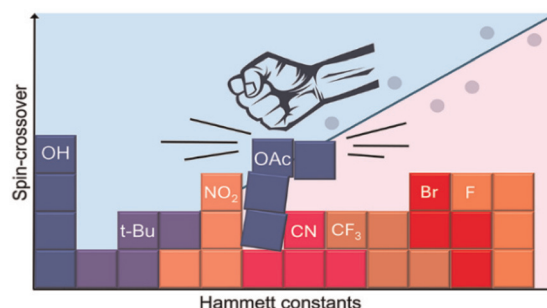
Huajie Wu, Xingran Wang, Tiejun Zhao, Xiaopeng Li* and Danlei Li*



7795

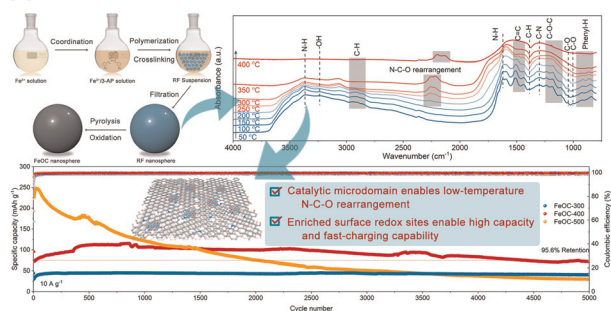
Constant no more: reevaluating Hammett constants through spin-crossover

Igor Nikovskiy, Dmitry Aleshin, Aleksei Anisimov, Valentin Novikov and Yulia Nelyubina*



RESEARCH ARTICLES

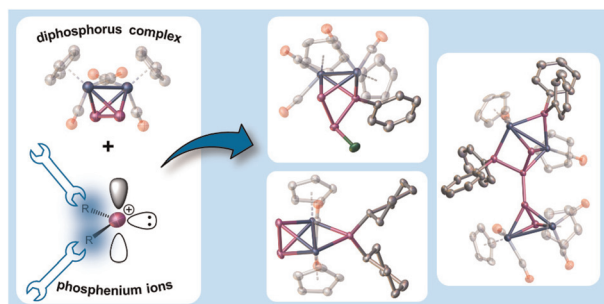
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Catalytic microdomain engineering enables low-temperature fabrication of high-rate carbon anodes

Qiongguang Li,* Yue Zhu, Wenzhen Du, Shenglong Wu, Xiufang Wang, Yaqin Wang and Shaojie Feng

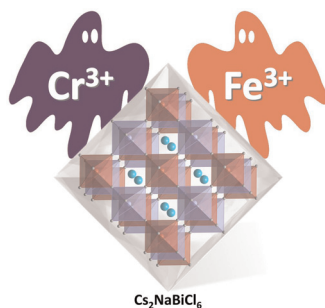
7813



Reactivity of a diphosphorus complex towards phosphenium ions

Lisa Zimmermann, Robert Szlosek, Alexander Gröer Gassiot, Luis Dütsch, Christoph Riesinger and Manfred Scheer*

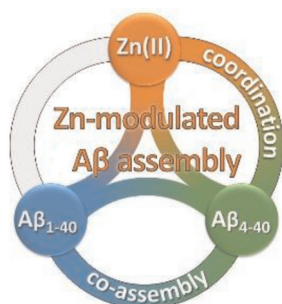
7820



Revisiting the reported emission spectrum of Cs₂NaBiCl₆

Hei-Yui Kai, Daiwen Xiao, Ka-Leung Wong,* Anjun Huang and Peter A. Tanner*

7827



Modulation of Aβ₁₋₄₀ and Aβ₄₋₄₀ co-assembly by zinc: getting closer to the biological reality

Lucie de Cremoux, Enrico Falcone, David Schmitt, Ewelina Stefaniak, Marta D. Wiśniewska, Nicolas Vitale, Wojciech Bal and Christelle Hureau*

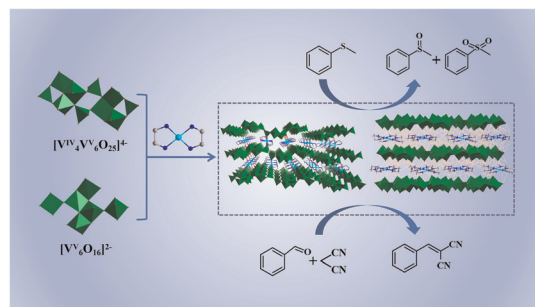


RESEARCH ARTICLES

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Two new isopolyoxovanadates based on V_{10} and V_6 : structural assembly and dual catalytic applications

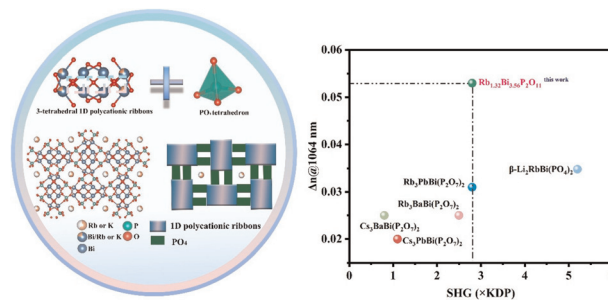
Linmeng Lu, Ziyi Hu, Qichao Yan, Xinyao Gao,
Chaonan Liu, Ruikang Zhang, Li Ma* and Yuanzhe Gao*



7855

1D Bi ribbon/[PO₄] synergy-driven bismuth phosphates for ultraviolet nonlinear optical crystals with large SHG and birefringence

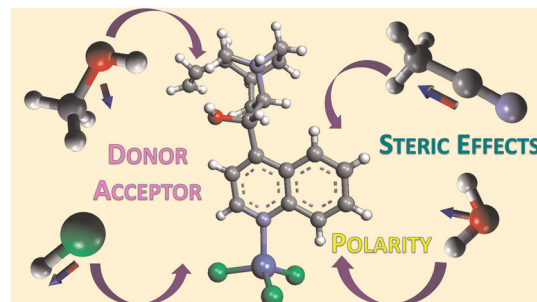
Lei Wu, Xudong Leng, Bao Jiang, Xueyin Fu, Yi Huang,
Xue Yu, Qun Jing* and Zhaohui Chen*



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Engineering solid-state structural transformations and reactions in complexes containing a natural alkaloid for specific switchable properties

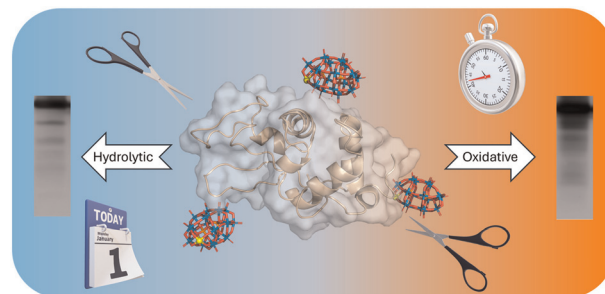
Mia Mesić, Marko Dunatov, Andreas Puškarić,
Glorija Medak, Robert Kruk and Lidija Androš Dubraja*



7874

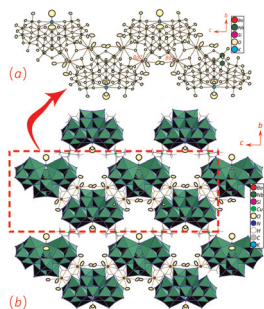
Fast and selective protein modification with iron-substituted polyoxometalates via a radical pathway

Mhamad Aly Moussawi, Shorok A. M. Abdelhameed,
Francisco de Azambuja, Andy Wijten, Tamara Vasović,
Tanja Čirković Veličković and Tatjana N. Parac-Vogt*



RESEARCH ARTICLES

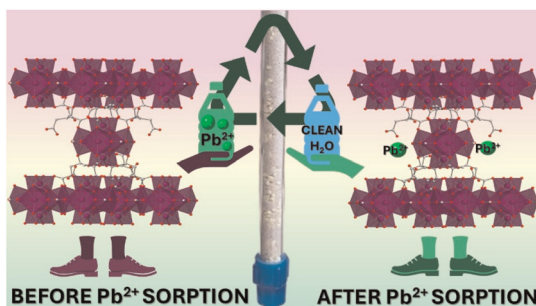
7883



Alkaline earth-tuned polyoxometalate frameworks: enhanced selectivity in styrene epoxidation

Zhi-Cheng Duan, Guanghua Li and Xiao-Bing Cui*

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Aqueously synthesized and reusable Ce(IV)-based metal–organic frameworks with aliphatic multicarboxylate linkers for highly efficient Pb²⁺ removal from water

Nikolaos E. Anastasiadis, Vasiliki I. Karagianni, Pantelis Kotidis, Christos Dimitriou, Ioannis Vamvasakis, Theodore Lazarides, Giannis S. Papaefstathiou, Yiannis Deligiannakis, Gerasimos S. Armatas, Emilia Buchsteiner and Manolis J. Manos*

