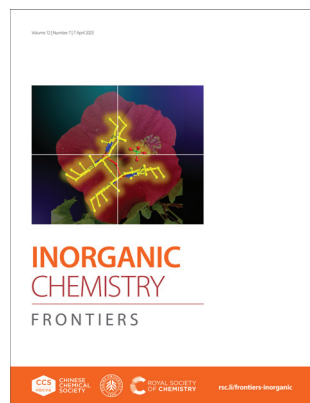


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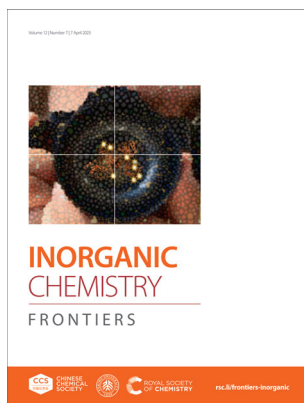
ISSN 2052-1553 CODEN ICFNAW 12(7) 2541-2964 (2025)



Cover

See Gopalan Rajaraman, Sankar Prasad Rath *et al.*, pp. 2613–2626.

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Inside cover

See Antonello Merlino *et al.*, pp. 2627–2637.

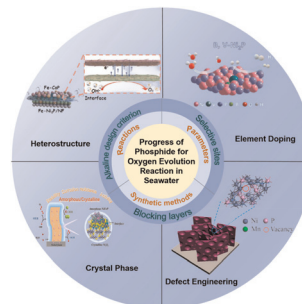
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REVIEWS

2554

Design principles of metal phosphides for the oxygen evolution reaction in seawater: activity, selectivity and stability

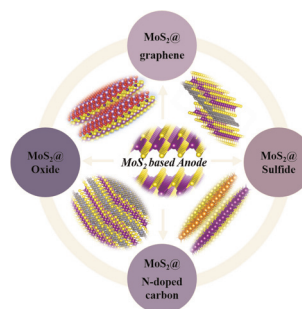
Meng Li, Zefeng Teng, Chenxi Liu, Jiase Meng, Guiru Sun, Xiaobin Liu, Jianping Lai, Jingqi Chi* and Lei Wang*



2587

Advancements in MoS₂-based anodes for Li-ion batteries: recent progress, challenges, and future directions

Jaeseop Yoo, Getasew Muluaem Zewdie and Hyeyoung Shin*



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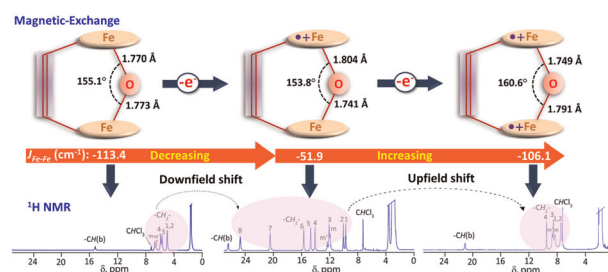
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RESEARCH ARTICLES

2613

Modulating magnetic exchange, spin dynamics and intermacrocyclic interactions *via* an oxo-bridge in dihememes through stepwise oxidations

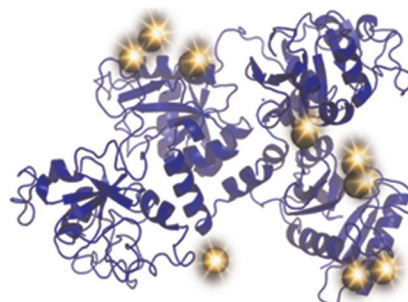
Sayantani Banerjee, Rupesh Kumar Tiwari, Paulami Chakraborty, Gopalan Rajaraman* and Sankar Prasad Rath*



2627

The X-ray structure of the adduct formed upon reaction of aurothiomalate with apo-transferrin: gold binding sites and a unique transferrin structure along the apo/holo transition pathway

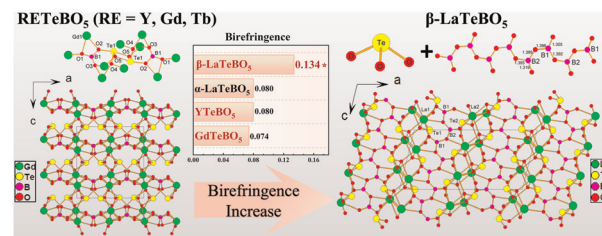
Romualdo Troisi, Francesco Galardo, Luigi Messori, Filomena Sica and Antonello Merlino*



2638

β -LaTeBO₅ and RETeBO₅ (RE = Y, Gd, Tb): explorations of new optical materials in the RE(III)–Te(IV)–B–O system

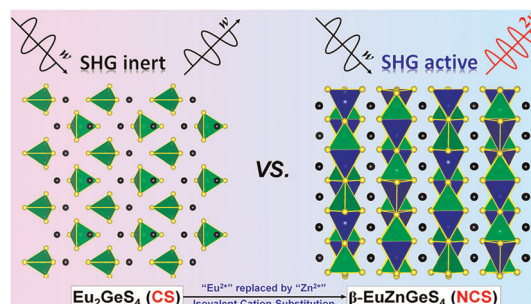
Peng-Fei Chen, Chun-Li Hu, Ming-Zhi Zhang and Jiang-Gao Mao*



2648

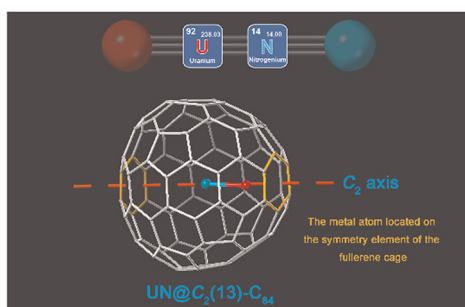
Isovalent cation substitution drives structural transformation and infrared nonlinear optical activity in Eu-based chalcogenides

Ping Feng, Sheng-Hua Zhou, Mao-Yin Ran, Bingxuan Li, Xin-Tao Wu, Hua Lin* and Qi-Long Zhu*



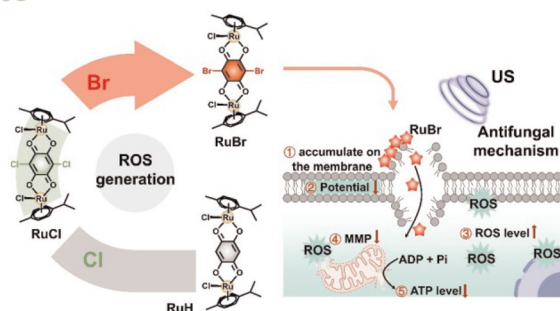
RESEARCH ARTICLES

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**UN@C₂(13)-C₈₄: a diatomic cluster with a U≡N triple bond inside a C₈₄ fullerene cage**

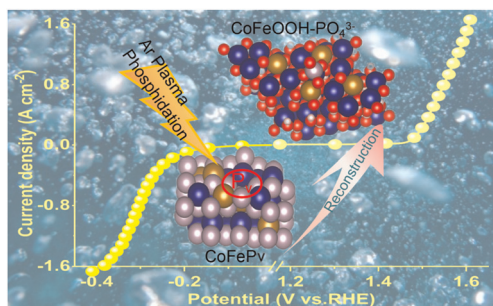
Qingyu Meng, Yannick Roselló, Yi Shen, Yang-Rong Yao,* Josep M. Poblet, Antonio Rodríguez-Fortea* and Ning Chen*

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**Heavy atom engineering of Ru(II) complex based sonosensitizers for enhancing antifungal therapy**

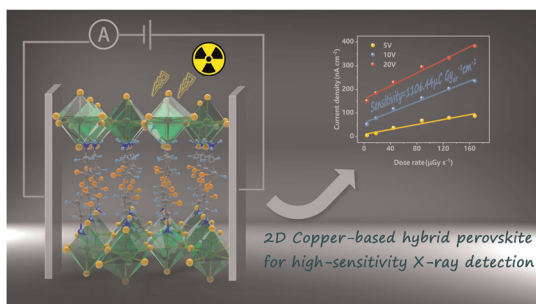
Qian Li, Yida Pang, Longcan Mei, Shiming Liang, Huiling Wang, Yujia Jiao, Sheng Qiu,* Hui Chen,* Xiwen Xing* and Yao Sun*

2678

**P vacancy-induced electron redistribution and phase reconstruction of CoFeP for overall water splitting at industrial-level current density**

Xueling Wei, Yang Jiao, Xiangyu Zou,* Yuchen Guo, Wenhui Li* and Taotao Ai*

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**Inch-sized single crystals of radiation-sensitive copper-based hybrid perovskites for direct X-ray detection**

Yicong Lv, Xiantan Lin, Fafa Wu, Zengshan Yue, Fen Zhang, Xiaoqi Li, Qingyin Wei, Kai Li, Qianxi Wang, Junhua Luo and Xitao Liu*

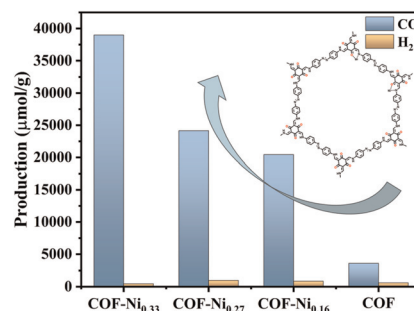


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Incorporating metal active centers into covalent organic frameworks for boosting CO₂ photoreduction

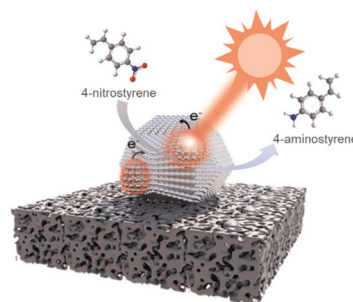
Ming-zhen Chen, Hai-rong Zhao, Kai-ming Zhang, Hong-jing Zhu, Hai-bao Duan* and Xiao-Ming Ren*



2709

Photothermal conversion enhances selective hydrogenation over MOF-derived Cu–MoO₂ interfaces under ambient conditions

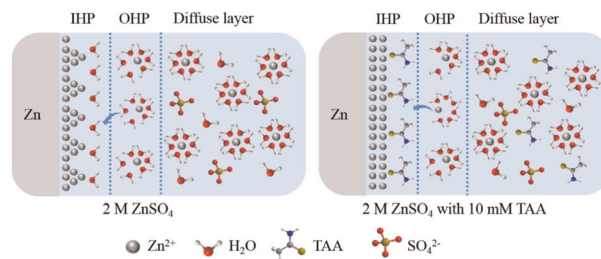
Songlin Yan, Weihong Liu, Jianjun Long, Kun Wang,* Qilu Yao, Gang Feng and Zhang-Hui Lu*



2719

Reconfiguring the Helmholtz plane with a trace polar additive for highly reversible zinc anodes

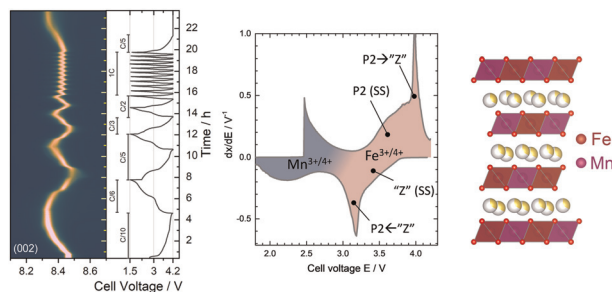
Yu Lu, Yanxin Wang, Chenyang Guo, Mingyue Chen, Kunyu Hao, Pengcheng Qi and Yiwen Tang*



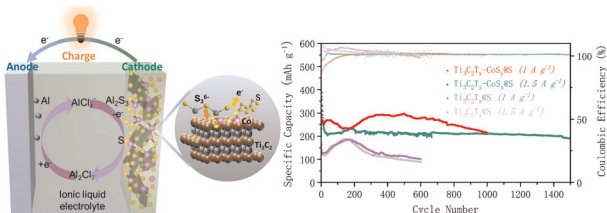
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Rate-dependent structure-electrochemistry relationships and origins of capacity fading in P2-type Na_{2/3}Fe_{2/3}Mn_{1/3}O₂

Damian Goonetilleke,* Begoña Silvan, Elena Gonzalo, Montserrat Galcerán, Montse Casas-Cabanas, Maxim Avdeev, François Fauth, Teófilo Rojo, Neeraj Sharma and Damien Saurel*



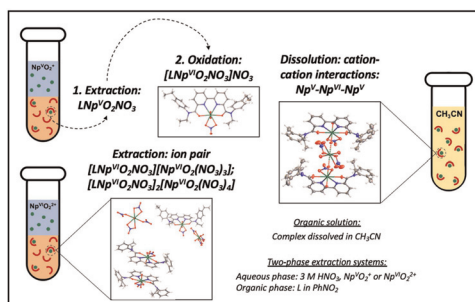
2747



A bifunctional heterostructure promoting the kinetics and stability of sulfur cathodes in advanced aluminum–sulfur batteries

Xiao Zheng, Xiaoqi Han, Wenjiao Yao,* Liangming Wei,* Jie Zhu and Yongbing Tang*

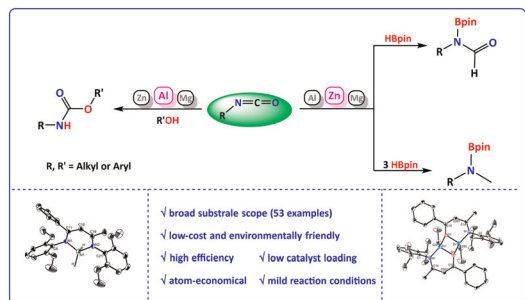
2759



Redox transformations and cation–cation interactions of neptunium in organic solutions

Anna D. Krot,* Nataliya E. Borisova, Daniil A. Novichkov, Alexander L. Trigub, Alexander M. Fedoseev, Alina A. Sivolap, Mikhail S. Grigoriev, Paulina Kalle, Vladimir G. Petrov, Stepan N. Kalmykov and Petr I. Matveev*

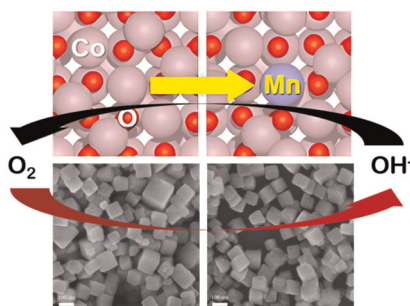
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Synthesis of non-precious metal complexes (Al, Mg, Zn) and their catalytic application in isocyanate reduction

Ziyuan Pang, Xiaoli Ma,* Wenliang Yan, Xiaobo Yang, Congjian Ni, Yiwen Chen, Peng Wu* and Zhi Yang*

2783



Mn doping for regulating the electronic structure of Co₃O₄ to construct dual active sites for oxygen electrocatalysis

Ziyi Shui,* Huiying Tian, Hang Mu, Liyun Xu, Xiaoming Gao* and Xi Chen*

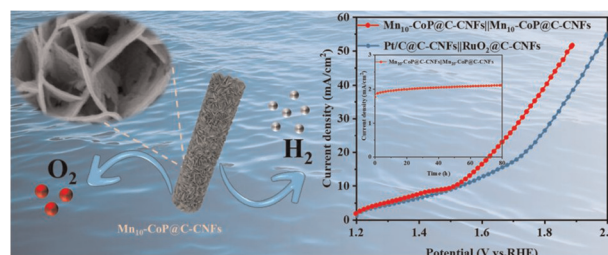


RESEARCH ARTICLES

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Mn doping promotes deep surface reconstruction of CoP nanosheet arrays to drive efficient water splitting

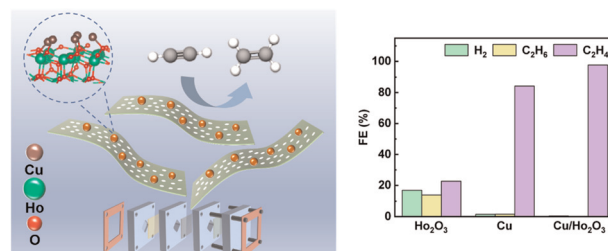
Xiaoyan Liu, Tingting Huang, Hui Ding, Juan Xiao, Xiaolan Fan, Zhiwei Yu, Li Zhang* and Guancheng Xu*



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Ultrathin two-dimensional mesoporous holmium oxide nanosheet-stabilized copper nanoparticles for stable and efficient electrocatalytic semi-hydrogenation of acetylene

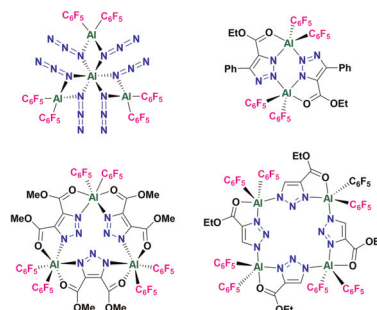
Huawei Li, Miao He, Senyao Meng, Ping Wang, Cheng Yang, Jiasai Yao, Zikang Hu and Zhenxing Li*



2818

Superacidic aluminum azido species: precursors to triazolyl dimers, trimers and tetramers

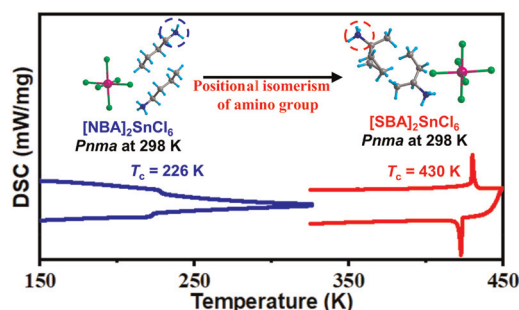
Shaoying Ju, Jingjie Tan, Ting Chen,* Weili Yan, Ning Xi, Douglas W. Stephan* and Yile Wu*



2825

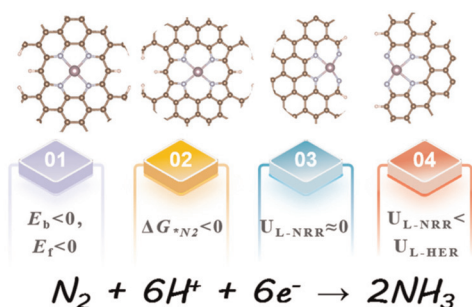
A high phase transition temperature organic–inorganic Sn(IV)-based metal halide designed by applying amino positional isomerism to the cation

Zhang-Tian Xia, Hui-Ping Chen, Jun-Chao Qi, Hang Peng, Xin Shen, Yong-Ju Bai, Zhen-Yu Wang, Tian-En Yang and Wei-Qiang Liao*



RESEARCH ARTICLES

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Regulating the coordination environment of single-atom catalysts anchored on nitrogen-doped graphene for efficient nitrogen reduction

Shuo Wang, Bo Zhu* and Likai Yan*

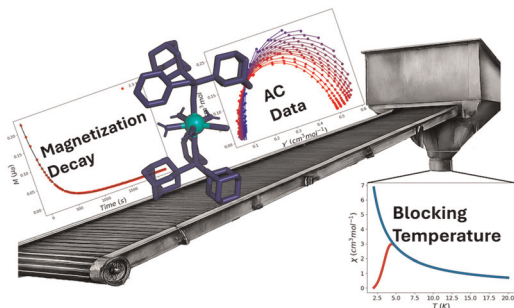
2844



Synthesis and characterization of neutral and cationic 1-tris(pirazoly)borate organo-beryllium complexes

Chantsalmaa Berthold, Gilles Stebens, Burkhard Butschke, Inga-Alexandra Bischoff, André Schäfer, Chengxiang Ding, Sudip Pan* and Magnus R. Buchner*

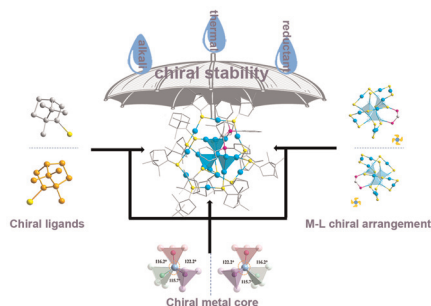
2856



Determining the zero-field cooling/field cooling blocking temperature from AC susceptibility data for single-molecule magnets

Yolimar Gil, María Mar Quesada-Moreno,* María A. Palacios, Silvia Gómez-Coca,* Enrique Colacio,* Eliseo Ruiz* and Daniel Aravena*

2872



Effect of chiral camphor thiolate ligands on the structure and stability of Au₁₉ nanoclusters

Xiaoya Zhang, Shuwen Wu, Qinzhen Li, Jinsong Chai, Guiqi Gao,* Baoyu Huang,* Sha Yang* and Manzhou Zhu

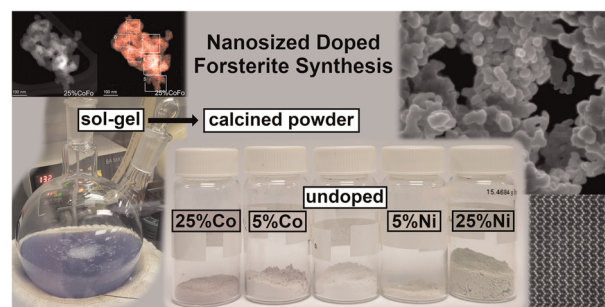


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Nanometer-sized nickel and cobalt doped forsterite synthesis for investigating critical element recovery from mafic and ultramafic rocks

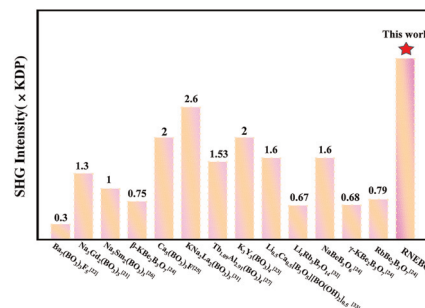
Kelly A. Peterson,* Mark E. Bowden, Bavan P. Rajan, Tenley E. Webb, Bridgette N. Carven, Libor Kovarik, Zsombor Molnár, Mark H. Engelhard, Sandra D. Taylor, Elsa A. Cordova, Thomas W. Wietsma, Sebastian T. Mergelsberg, Christopher J. Thompson, Sebastien N. Kerisit and John S. Loring*



2897

A potential UV nonlinear-optical crystal with a strong second-harmonic response: $\text{RbNa}_2\text{Eu}_2(\text{BO}_3)_3$

Dan Li, Jingyu Shang, Ming Gao, Jiangtao Fan,* Zhanggui Hu,* Ping Peng and Yicheng Wu



2904

Unlocking ultra-long stability of Zn–air batteries: synergistic role of antiperovskite carbide Fe_3SnC and Fe_3C nanoparticles in enhancing electro-catalytic performance

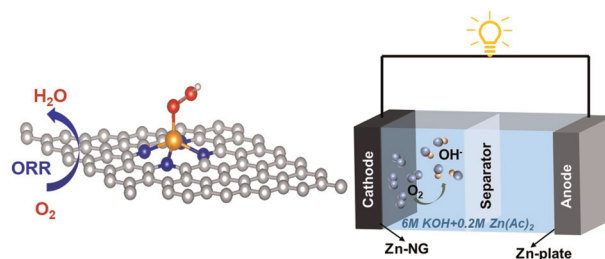
Shuting Li, Mengjiao Fu, Jinxi Han, Shaobo Jia, Zhengqiang Xia, Sanping Chen,* Yibo Lei, Haiyan Zhu,* Gang Xie, Shengli Gao and Qi Yang*



2917

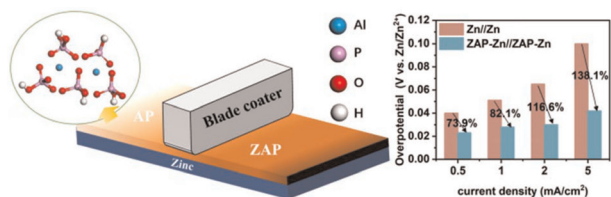
Coordination modulation of single-atom Zn sites to boost oxygen reduction performance

Siying Zhang, Xue Bai, Tianmi Tang, Weidong Ruan* and Jingqi Guan*



RESEARCH ARTICLES

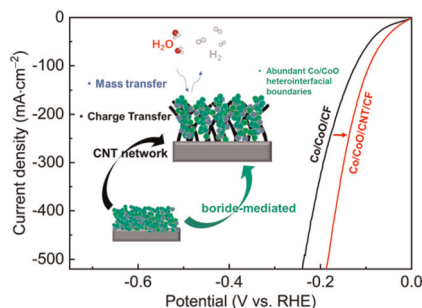
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Electrostatic regulation of Zn²⁺ ion concentration on electrodes and its impact on electrochemical performance

Yijun Yu, Lei Liu, Puning Liu, Wannian Jiang, Zhonghua Zhang, Xiaosong Guo,* Lin Zhang, Jun Zheng* and Guicun Li*

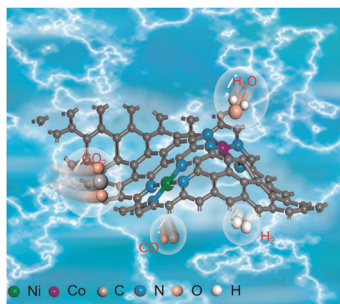
2934



Boride-mediated and carbon nanotube-scaffolded synthesis of cobalt-based electrocatalyst for efficient and stable alkaline hydrogen evolution at industrial-scale current density

Runze Wang, Yanmei Ren, He Wen, Zhengjun Chen* and Ping Wang*

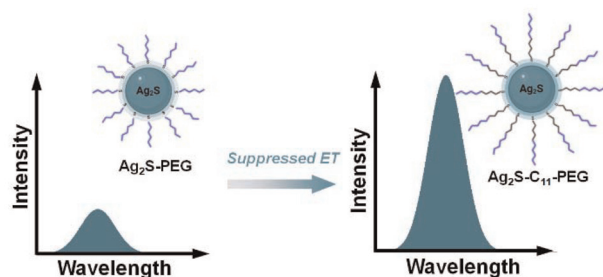
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Bimetallic Ni/Co single-atom catalysts guided by an energy descriptor for efficient CO₂ electroreduction to syngas

Yuye Qiu, Tao Zheng, Rui Liu, Jingjing Liu, Xiangdong Xue, Wengang Liu* and Jian Liu*

2954



Revealing the energy transfer between NIR-II PEGylated quantum dots and water

Mingzhe Wang, Sisi Ling, Ziyang Zhang, Yejun Zhang,* Hongchao Yang and Qiangbin Wang*



CORRECTION

2962

Correction: Exploring the use of rigid 18-membered macrocycles with amide pendant arms for Pb(II)-based radiopharmaceuticals

Charlene Harriswangler, Brooke L. McNeil, Isabel Brandariz-Lendoiro, Fátima Lucio-Martínez, Laura Valencia, David Esteban-Gómez, Caterina F. Ramogida* and Carlos Platas-Iglesias*

