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pp. 3476–3483.

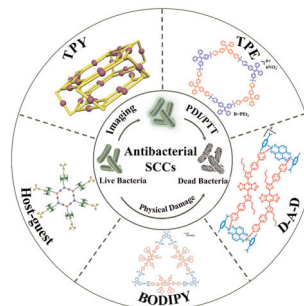
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53, 3476.

PERSPECTIVE

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Recent advances in combatting bacterial infections via well-designed metallacycles/metallacages

Qian Li, Huan Ye, Fang Zhao, Yuntao Li, Zhipeng Zhang,*
Qiang Yan* and Yao Sun*

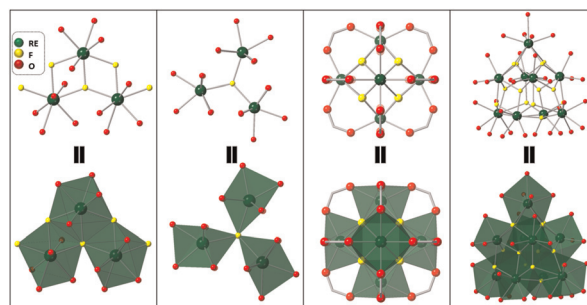


FRONTIER

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Fluoro-bridged rare-earth metal–organic frameworks

Muhammad Abbas, Simin Sheybani, Marie L. Mortensen
and Kenneth J. Balkus, Jr.*



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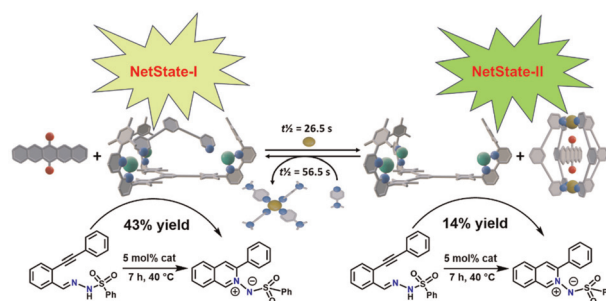


COMMUNICATIONS

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Interconversion between multicomponent slider-on-deck and palladium capsule: regulation of catalysis and encapsulation

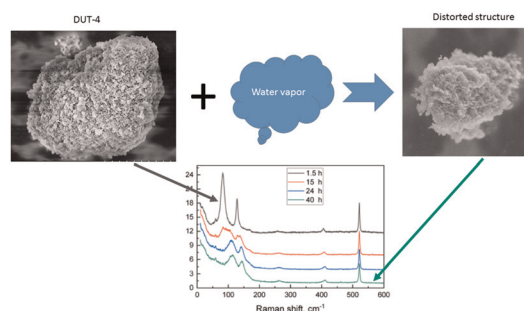
Isa Valiyev, Indrajit Paul, Yi-Fan Li, Emad Elramadi and Michael Schmittel*



3459

Application of DUT-4 MOF structure switching for optical and electrical humidity sensing

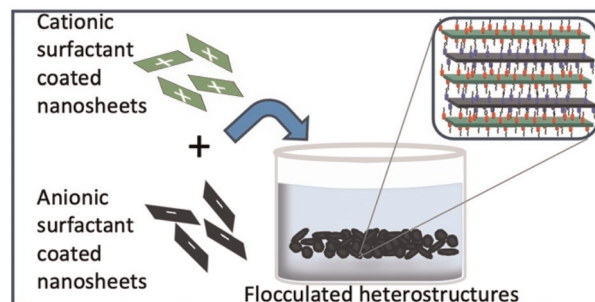
Alexander S. Krylov,* Sergei A. Shipilovskikh, Svetlana N. Krylova, Nina V. Slyusarenko, Maria Timofeeva, Yuliya A. Kenzhebayeva, Semyon V. Bachinin, Irina D. Yushina, Aleksandr V. Cherepakhin, Nikolai P. Shestakov, Ivan V. Nemtsev, Alexander N. Vtyurin and Valentin A. Milichko



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Solution-based electrostatic self-assembly route for obtaining graphene–transition metal dichalcogenide heterostructures

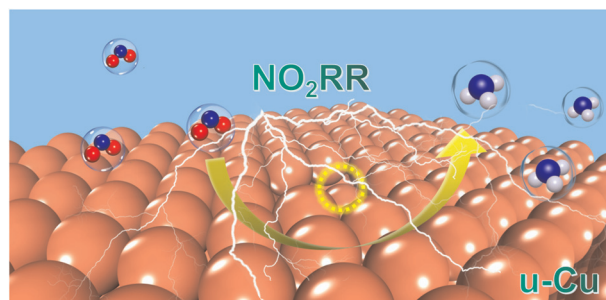
Kenneth Lobo, Priyanka R. Sumbe, Mahendra A. More, Dattatray J. Late and H. S. S. Ramakrishna Matte*



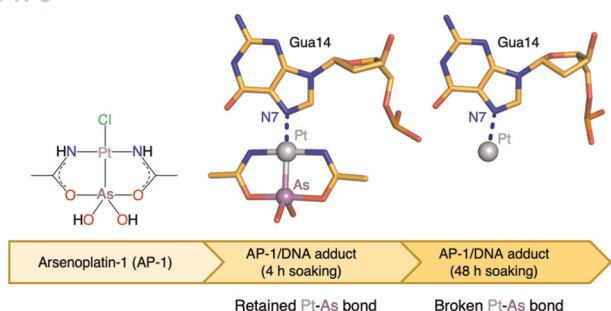
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Electrocatalytic reduction of nitrite to ammonia on undercoordinated Cu

Ruichao Zhang,* Shiyao Shang, Fuzhou Wang and Ke Chu*



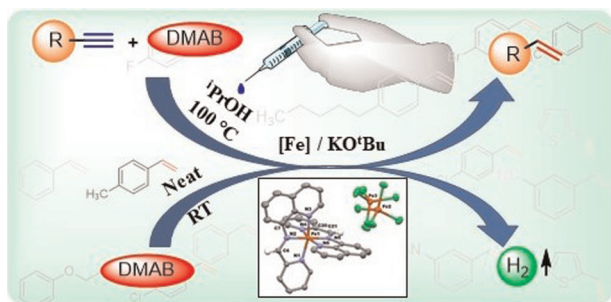
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On the mechanism of action of arsenoplatins: arsenoplatin-1 binding to a B-DNA dodecamer

Romualdo Troisi, Gabriella Tito, Giarita Ferraro, Filomena Sica, Lara Massai, Andrea Geri, Damiano Cirri, Luigi Messori and Antonello Merlino*

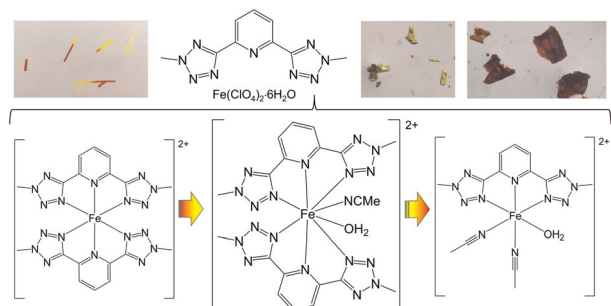
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Transfer semi-hydrogenation of terminal alkynes with a well-defined iron complex

Deep Chowdhury, Souvik Goswami, Gamidi Rama Krishna and Arup Mukherjee*

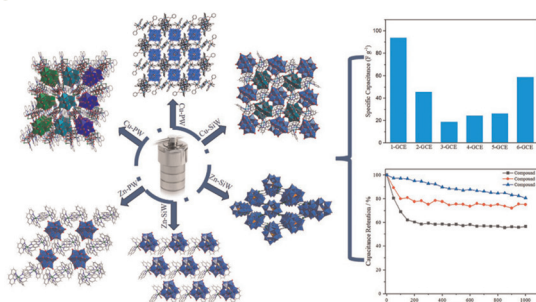
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Trapping an unprecedented octacoordinated iron(II) complex with neutral bis-tetrazolypyridyl ligands and solvent molecules

Luca Rigamonti,* Lorenzo Marchi, Valentina Fiorini, Stefano Stagni, Stefano Zacchini, Dawid Pinkowicz, Katarzyna Dziedzic-Kocurek, Alessandra Forni, Francesco Muniz Miranda and Rita Mazzoni

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Six polyoxotungstate-based transition metal compounds for electrochemical capacitor application and a comparative analysis of factors affecting capacitances

Cai-Hong Peng, Guanghua Li, Ke-Chang Li and Xiao-Bing Cui*

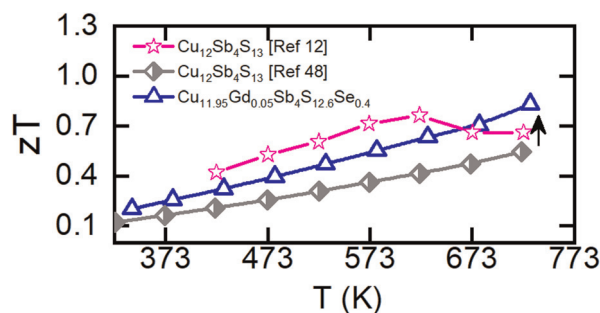


PAPERS

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Thermoelectric properties of Gd and Se double substituted tetrahedrite

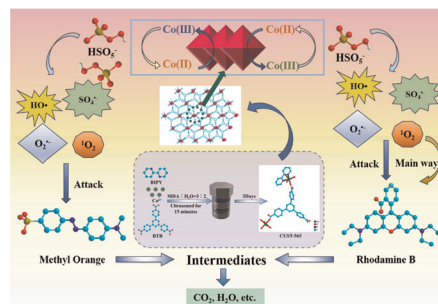
Umasankar Rout and Ramesh Chandra Mallik*



3523

Enhancing dye degradation using a novel cobalt metal–organic framework as a peroxymonosulfate activator

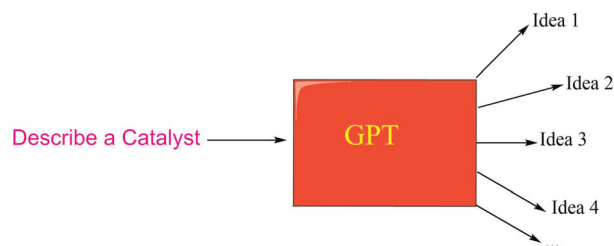
Tuotuo Li, Ahmed Olalekan Omoniyi, Yuliang Wang, Xiaoli Hu* and Zhongmin Su*



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Enhancing catalysis studies with chat generative pre-trained transformer (ChatGPT): Conversation with ChatGPT

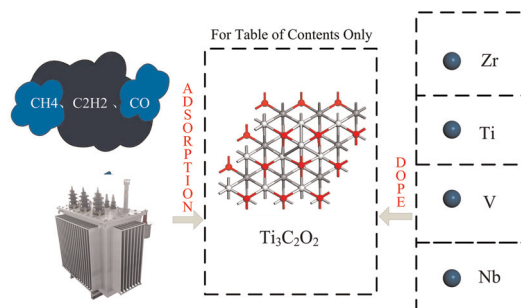
Navid Ansari, Vahid Babaei and Mohammad Mahdi Najafpour*



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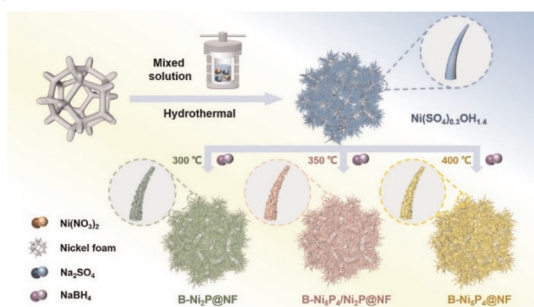
Gas-sensing properties of Ti, Zr, V, and Nb-modified Ti3C2O2 for decomposed gases in locomotive electric transformers: a DFT study

Yanshan Zhang,* Shoucheng Yan and Yawei Zhu



PAPERS

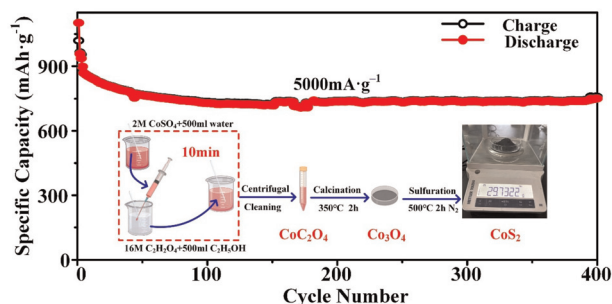
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Anion doping and interfacial effects in B-Ni₅P₄/Ni₂P for promoting urea-assisted hydrogen production in alkaline media

Mingming Sun, Huichao Wang, Hongjing Wu, Yuquan Yang, Jiajia Liu, Riyu Cong, Zhengwenda Liang, Zhongning Huang* and Jinlong Zheng*

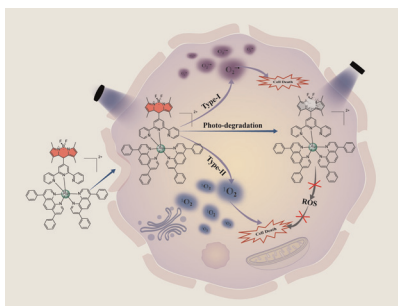
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Macroscale preparation of CoS₂ nanoparticles for ultra-high fast-charging performance in sodium-ion batteries

Yan-Fen Liu, Tian Zhang, Huan-Huan Zhang, Ting-Ting Huang,* Kai Wang, Yue-Xian Song, Jun-Fei Liang, Yan-Gang Zhang, Wei Fan and Xiao-Bin Zhong*

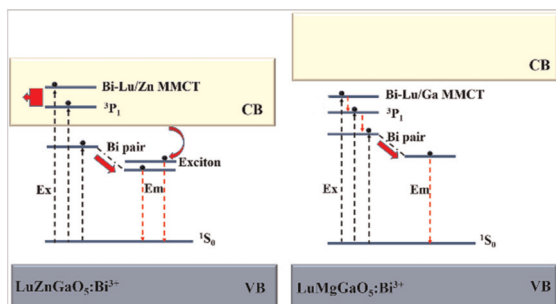
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A photo-degradable BODIPY-modified Ru(II) photosensitizer for safe and efficient PDT under both normoxic and hypoxic conditions

Yatong Peng, Xuwen Da, Wanpeng Zhou, Yunli Xu, Xiulian Liu, Xuesong Wang* and Qianxiong Zhou*

3589



Unraveling the origin of broadband yellow emission in Bi³⁺-doped LuXnGaO₄ (Xn = Mg, Zn) phosphors

Wanying Geng, Xufeng Zhou, Jianyan Ding and Quansheng Wu*

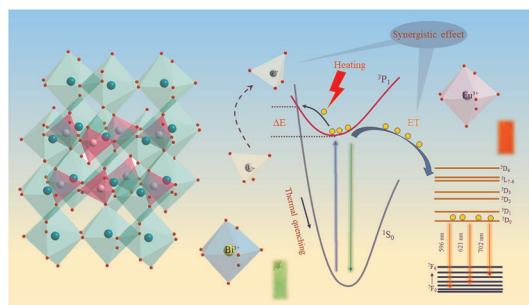


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Regulating luminescence thermal quenching based on the synergistic effect of energy transfer and energy gap modulation

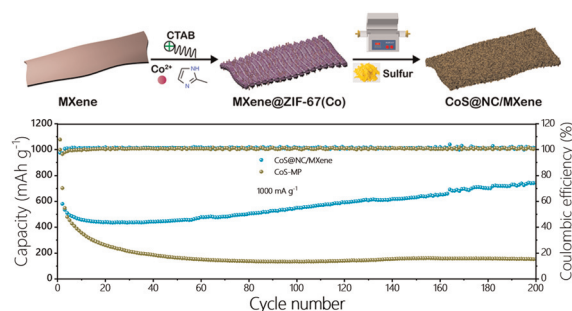
Qincan Ma, Fuhua Gao, Da Cai and Yueli Zhang*



3611

Layered CoS@NC *in situ* loaded onto $\text{Ti}_3\text{C}_2\text{T}_x$ MXene as an efficient lithium-ion battery anode

Lei Zhang, Hankun Tan, Haoxian Zhu, Kun Yang, Wei Li and Li Sun*



3621

Zinc hydride catalyzed hydroboration of esters

A. Ganesh Patro, Rajata Kumar Sahoo and Sharanappa Nembenna*

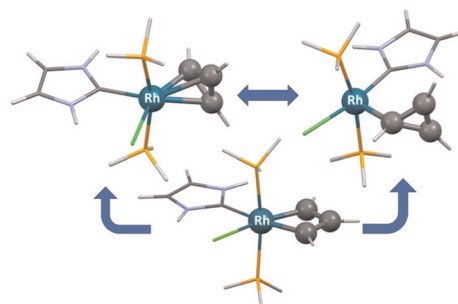


- Sustainable catalysis
- Mild conditions
- Wide substrate scope
- Stoichiometric experiments
- Excellent yield
- Gram-scale synthesis

3629

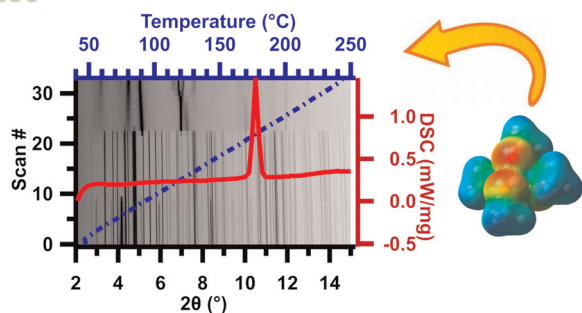
Stable cyclopropenylvinyl ligands *via* insertion into a transient cyclopropenyl metal bond

Lachlan J. Watson and Anthony F. Hill*



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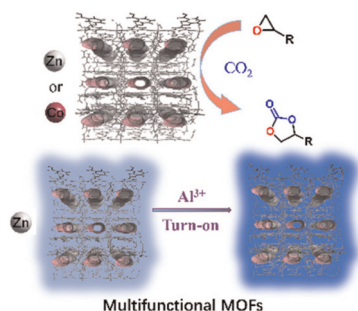
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Alkali metal alkoxyborate ester salts; a contemporary look at old compounds

Amanda Berger, Ainee Ibrahim, Thomas A. Hales, Anita M. D'Angelo, Craig E. Buckley and Mark Paskevicius*

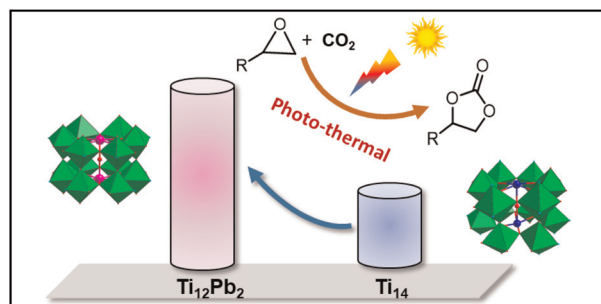
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Two isostructural Zn/Co-MOFs with penetrating structures: multifunctional properties of both luminescence sensing and conversion of CO₂ into cyclic carbonates

Nana Liu, Tingting Liu, Guangning Liu, Xiuna Mi, Yunwu Li, Lu Yang, Zhen Zhou and Suna Wang*

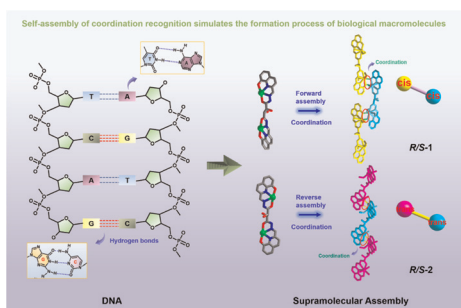
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Enhancing the photocatalytic performance of a rutile unit featuring a titanium-oxide cluster by Pb²⁺ doping

Amir Said, Guanjie Chen, Guanyun Zhang,* Dexin Wang, Yanshu Liu, Fangfang Gao, Guo Wang, Chen-Ho Tung and Yifeng Wang*

3675



Coordination recognition of differential template units of lanthanide chiral chain

Wen-Wen Qin, Bing-Fan Long, Zhong-Hong Zhu,* Hai-Ling Wang, Fu-Pei Liang* and Hua-Hong Zou*



Silver frameworks based on a tetraphenylethylene–imidazole ligand for electrocatalytic reduction of CO₂ to CO

Figure 1: Schematic representation of the Ag-MOF2/Ag-MOF1 photocatalytic system for CO₂ reduction. The diagram illustrates the structure of Ag-MOF1 (a large, complex metal-organic framework) and Ag-MOF2 (a layered metal-organic framework). A yellow lightning bolt indicates light irradiation. CO₂ molecules are shown entering the system. An arrow points from the Ag-MOF2 layer towards the Ag-MOF1 structure, indicating the transfer of electrons or species. A bar chart on the right shows the Faradaic efficiency (FE_{CO}) (%) for Ag-MOF1 (dark red bars) and Ag-MOF2 (orange bars) at different potentials (V vs. RHE) ranging from -1.2 to -0.8 V. The FE_{CO} values are generally higher for Ag-MOF1 than for Ag-MOF2 across the measured potential range.

Potential (V vs. RHE)	Ag-MOF1 FE _{CO} (%)	Ag-MOF2 FE _{CO} (%)
-1.2	~85	~75
-1.1	~85	~78
-1.0	~95	~78
-0.9	~88	~78
-0.8	~85	~72

Competitive adsorption mechanisms of Cd(II), Cu(II) and Pb(II) on bioinspired mesoporous silica revealed by complementary adsorption/isothermal titration calorimetry studies

Isothermal titration calorimetry

MECHANISM

Physical or chemical adsorption?

Affinity order

SELECTIVE ADSORPTION

SBA-15

Glutathione (GSH)

Na⁺

NO₃⁻

Pb²⁺

Cd²⁺

Cu²⁺

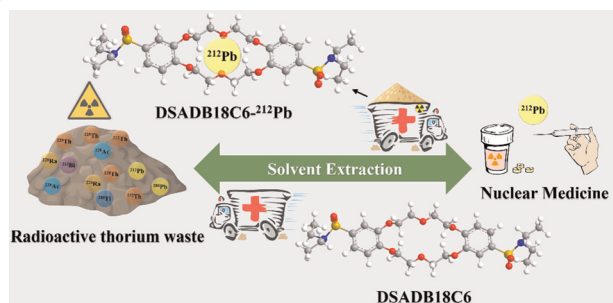
Cd²⁺ < Cu²⁺ < Pb²⁺

Broadband short-wave near-infrared-emitting phosphor $\text{MgNb}_2\text{O}_6:\text{Cr}^{3+}$ for *pc*-LED applications

A sol-gel derived LaCoO_3 perovskite as an electrocatalyst for Al-air batteries

The diagram illustrates the structure and operation of an Al-air battery. The battery consists of an **Anode** (Al plate), a **Separator** (PVA-KOH gel), and a **Cathode** (Catalyst layer-LCO). The anode is connected to a light bulb, and the cathode is connected to the air inlet. The separator contains OH^- and O_2 ions. The cathode is exposed to **Air**. To the right, a graph shows the **Voltage (V)** versus **time (min)** for three different current densities: 0.5 mA/cm^2 (black line), 1 mA/cm^2 (red line), and 3 mA/cm^2 (blue line). The voltage decreases over time, with higher current densities leading to a faster drop in voltage.

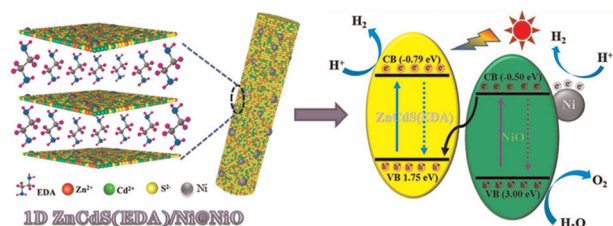
3722



Separation of lead-212 from natural thorium solution utilizing novel sulfonamide dibenzo-18-crown-6

Shiquan Cao, Yujia Kang, Huiping Tang and Zhi Chen*

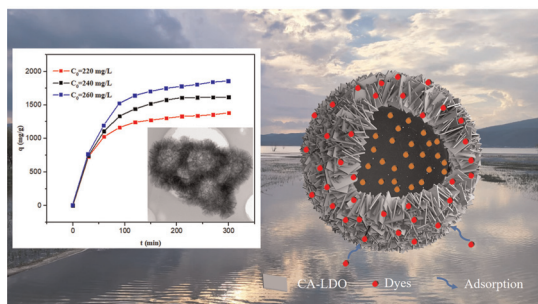
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Construction of one-dimensional ZnCdS(EDA)/Ni@NiO for photocatalytic hydrogen evolution

Changyan Guo,* Yangyang Zou, Yanqiu Ma, Naeem Akram, Ali Ahmad and Jide Wang*

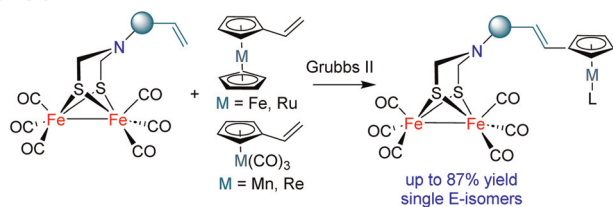
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Hierarchical Mg/Al hydrotalcite oxide hollow microspheres with excellent adsorption capability towards Congo red

Zeng Bai, Daoqing Rong, Ming Li, Guilong Xu, Shucheng Liu, Jianyun Zeng, Yinghao Lv, Yi Tang and Xiaogang Wen*

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A cross-metathesis approach for polymetallic [FeFe]-hydrogenase mimics

Sergio Aguado, Pablo García-Álvarez, Javier A. Cabeza, Luis Casarrubios* and Miguel A. Sierra*

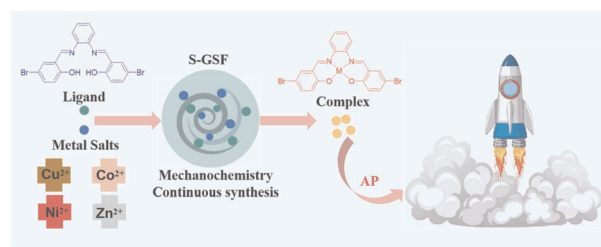


PAPERS

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Spiral gas–solid two-phase flow continuous mechanochemical synthesis of salophen complexes and catalytic thermal decomposition of ammonium perchlorate

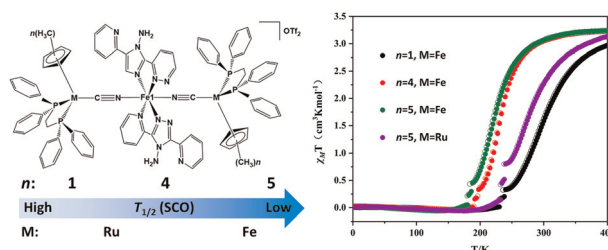
Yong Song, Zhiyuan Jin, Juan Zhang, Bo Jin* and Rufang Peng*



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Fine-tuning of thermally induced SCO behaviors of trinuclear cyanido-bridged complexes by regulating the electron donating ability of C_{CN}-terminal fragments

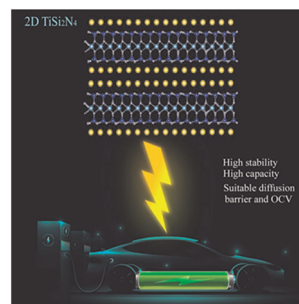
Ying-Ying Huang, Yong He, Yang Liu, Jin-Hui Fu, Xiao-lin Liu, Xin-Tao Wu and Tian-Lu Sheng*



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Alkali to alkaline earth metals: a DFT study of monolayer TiSi₂N₄ for metal ion batteries

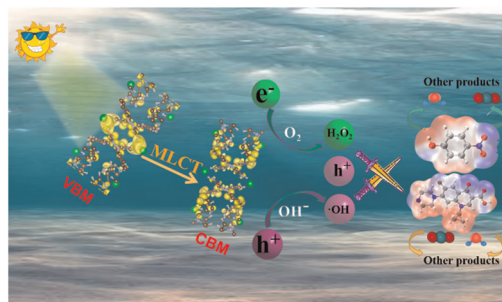
Sheraz Ahmad, H. U. Din,* Cuong Q. Nguyen,* Son-Tung Nguyen and C. Nguyen



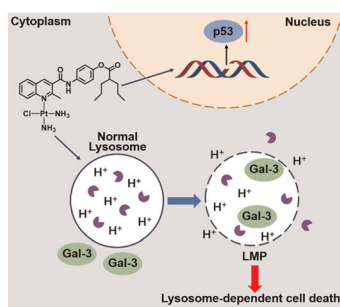
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Ag-based coordination polymer-enhanced photocatalytic degradation of ciprofloxacin and nitrophenol

Zhihu Ma, Xiaoming Song, Zhaoyu Li, Yixia Ren,* Jijiang Wang and Yucang Liang*



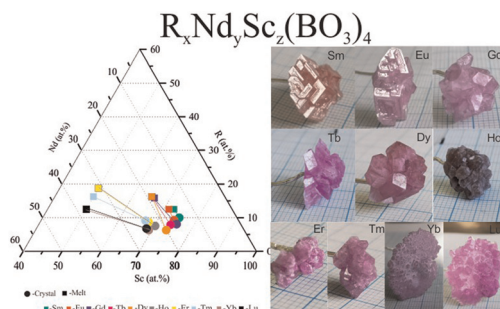
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A monofunctional Pt(II) complex combats triple negative breast cancer by triggering lysosome-dependent cell death

Xiaomin Shen, Yue Peng, Zidong Yang, Renhao Li, Haixia Zhou, Xiaoxia Ye,* Zhong Han* and Xiangchao Shi*

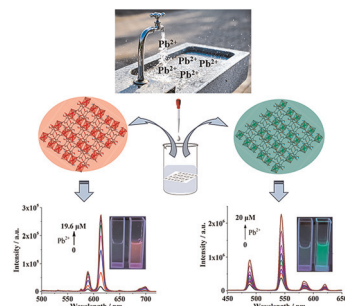
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Systematic rare Earth doping to adopt an R32 type huntite structure in NdSc₃(BO₃)₄ crystals

Artem B. Kuznetsov, Konstantin A. Kokh,* Ekaterina V. Kaneva, Ammar Y. Jamous, Valery A. Svetlichnyi, Nadezda G. Kononova, Vyacheslav S. Shevchenko, Anastasia A. Goreiavcheva and Aleksander E. Kokh

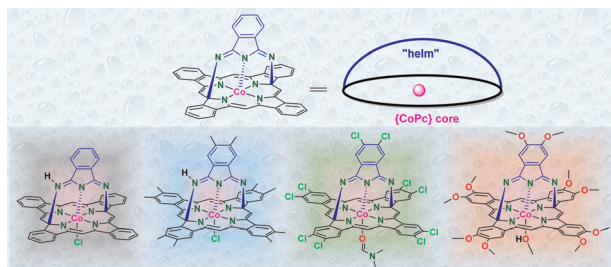
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Luminescent lanthanide complexes based on 4,5-di(3,5-dicarboxylphenoxy)phthalic acid as enhanced fluorescence probes for highly selective detection of lead(II) ions in water

Wenwen Wei, Ai Wang, Liping Lu, Caixia Yuan,* Sisi Feng,* Ulli Englert and Shengqian Ma*

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Cobalt(III)-containing penta-dentate "helmet"-type phthalogens: synthesis, solid-state structures and their thermal and electrochemical characterization

Rasha K. Al-Shewiki, Saddam Weheabby, Nell Uhlig, Marcus Korb, Tom Pester, Stefan Zahn, S. Grecchi, P. R. Mussini, Tobias Rüffer* and Heinrich Lang

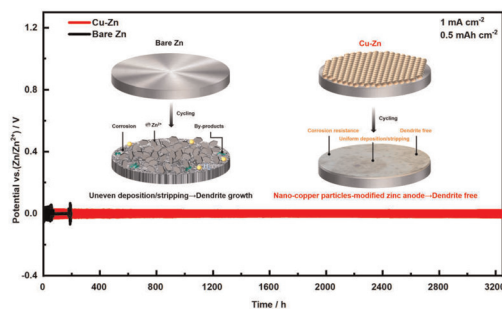


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A nano-copper particle-modified zinc anode as a protective coating enables dendrite-free aqueous zinc-ion batteries

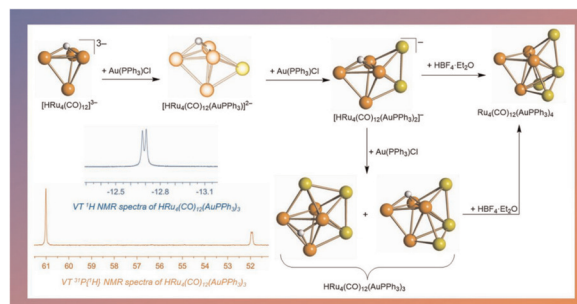
Hongchuan Zhu, Mingshu Zhao,* Mangmang Shi, Chenjie Yuan, Feng Li, Zhou Su, Lidong Jiao, Min Li and Sen Yang



3865

Peraurated ruthenium hydride carbonyl clusters: aurophilicity, isolobal analogy, structural isomerism, and fluxionality

Cristiana Cesari,* Marco Bortoluzzi, Cristina Femoni, Francesca Forti, Maria Carmela Iapalucci and Stefano Zacchini



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Carbone stabilized B₂ and B₂²⁺ – isoelectronic analogues to diborabutyne and diborabutatriene

Jishnu Sai Gopinath, Naseeha Vadakkathodika and Pattiyil Parameswaran*

