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ISSN 1477-9226 CODEN DTARAF 52(40) 14245-14688 (2023)



**Cover**  
See Jian Luan, Lei Zhang, Wen-Ze Li *et al.*, pp. 14329–14337.

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**Inside cover**  
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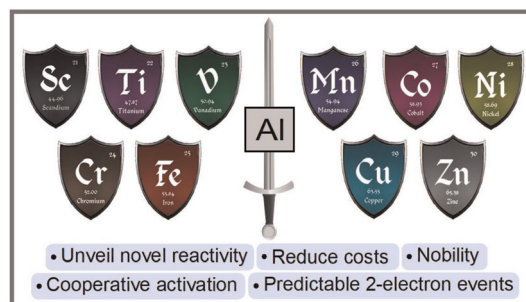
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Sergio Fernández, Selwin Fernando and Oriol Planas\*



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Prashanth K. Poddutoori



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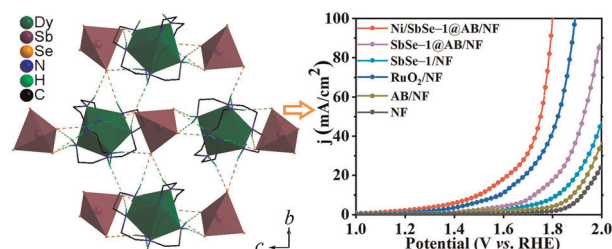
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14297

### Facile solvothermal preparation of an organic hybrid dysprosium selenidoantimonate for an efficient oxygen evolution reaction

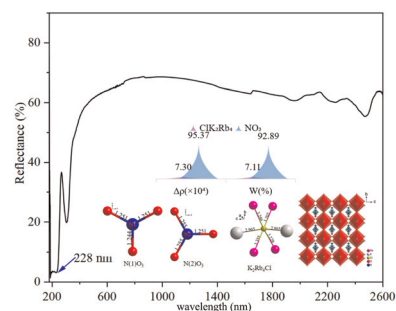
Xin Guo, Shu-mei Cao, Xing Liu, Chunmei Huang\* and Jian Zhou\*



14303

### KRb<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>Cl: a new birefringent crystal exhibiting a perovskite-related framework and a short cutoff edge

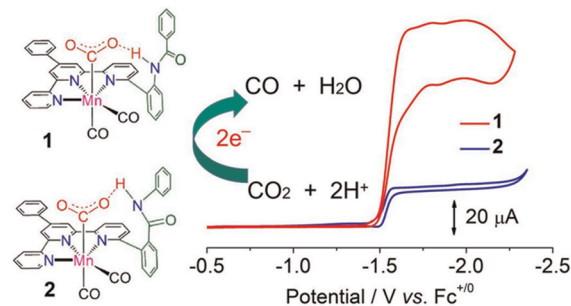
Zhiyuan Zhang, Die Xu, Zhencheng Wu, Mei Hu, Xin Su\* and Yineng Huang\*



14309

### Effects of proton tunneling distance on CO<sub>2</sub> reduction by Mn terpyridine species

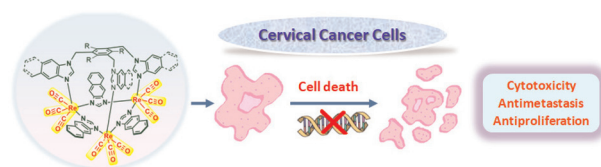
Yuhang Qing, Qianqian Wu, Shuanglin He, Ping Zhang, Ying Xiong, Yaping Zhang, Fang Huang,\* Fei Li\* and Lin Chen\*



14314

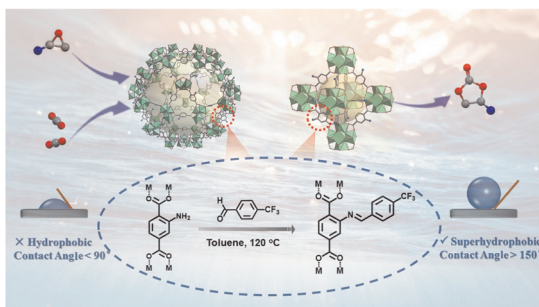
### Trinuclear rhenium(i)-based metallocages as anticancer agents towards human cervical cancer cells

Moon Kedia, Sajmina Khatun, Upasana Phukon, Bhaskaran Shankar, Aravind Kumar Rengan\* and Malaichamy Sathiyendiran\*



## COMMUNICATIONS

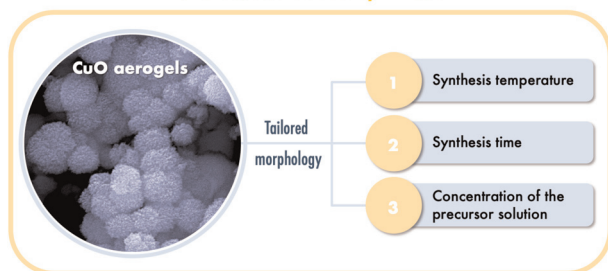
14319

Superhydrophobic MOFs with enhanced catalytic activity for chemical fixation of  $\text{CO}_2$ 

Shuo Liu, Ming-Liang Gao,\* Chen-Ning Li, Lin Liu\* and Zheng-Bo Han\*

14324

## Microwave-based synthesis

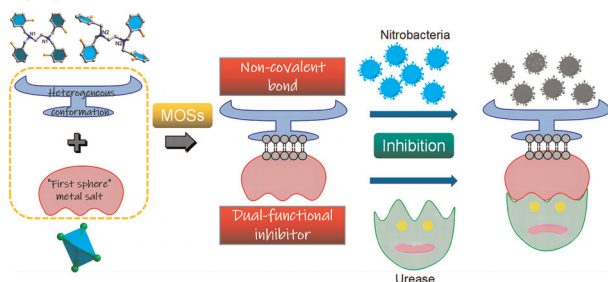


## CuO metallic aerogels with a tailored nodular morphology

Lucía dos Santos-Gómez,\* Natalia Rey-Raap, S. García-Granda and Ana Arenillas

## PAPERS

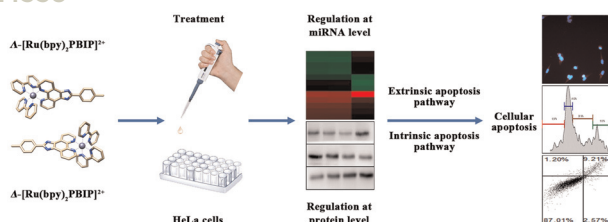
14329



## Fabrication of metal-organic salts with heterogeneous conformations of a ligand as dual-functional urease and nitrification inhibitors

Wen-long Duan, Cong Ma, Jian Luan,\* Fang Ding, Feng Yan, Lei Zhang\* and Wen-Ze Li\*

14338

Comparative studies on *in vitro* antitumor activities and apoptosis-inducing effects of enantiomeric ruthenium(II) complexes

Jianrong Jiang, Qian Chen, Tianwen Huan, Yanhong Nie, Zhongming Dai, Dujuan Li, Xu Xu, Jun Lu, Zhangli Hu and Hong Xu\*

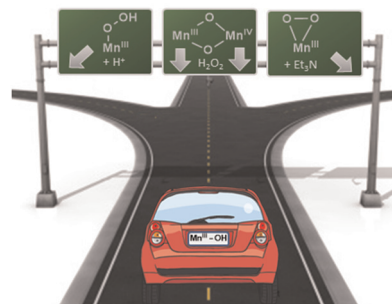


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14350

### Reaction landscape of a mononuclear Mn<sup>III</sup>–hydroxo complex with hydrogen peroxide

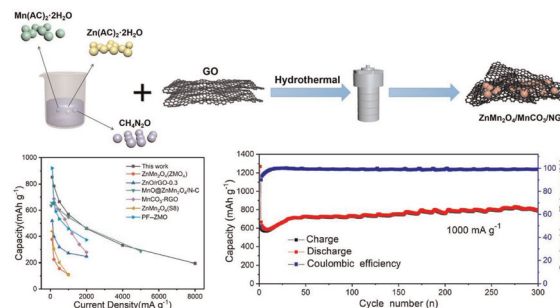
Elizabeth N. Grotemeyer, Joshua D. Parham and Timothy A. Jackson\*



14371

### A ternary oxygen-vacancy abundant ZnMn<sub>2</sub>O<sub>4</sub>/MnCO<sub>3</sub>/nitrogen-doped reduced graphene oxide hybrid towards superior-performance lithium storage

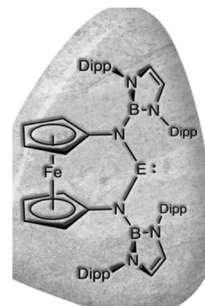
Shuo Wang, Yuzhen Kuang, Hanlu Wang, Xi Guo, Bingqiang Cao and Li Li\*



14380

### A complete series of N-heterocyclic tetrylenes (Si–Pb) with a 1,1'-ferrocenediyl backbone enabled by 1,3,2-diazaborolyl *N*-substituents

Robin Guthardt,\* Hannes L. Jacob, Clemens Bruhn and Ulrich Siemeling\*



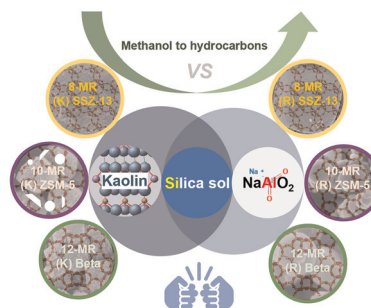
## Rock Stable Tetrylenes

E = Si, Ge, Sn, Pb

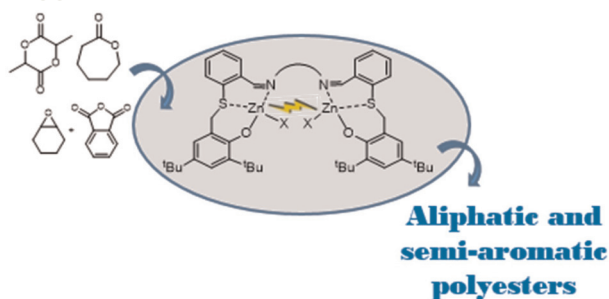
14390

### Evaluating the efficacy of zeolites synthesized from natural clay for the methanol-to-hydrocarbon process

Xinyu You, Xin Zhang, Yiru Ye, Hexun Zhou, Shican Jiang, Xue Zhou and Abhishek Dutta Chowdhury\*



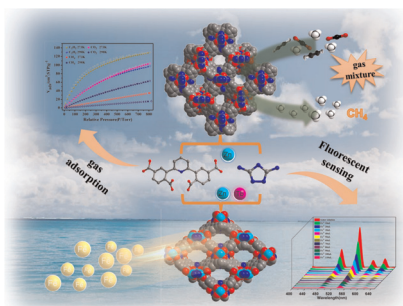
14400



### Cooperative effects of Schiff base binuclear zinc complexes on the synthesis of aliphatic and semi-aromatic polyesters

Federica Santulli, Federica Tufano, Mariachiara Cozzolino, Ilaria D'Auria, Maria Strianese, Mina Mazzeo and Marina Lamberti\*

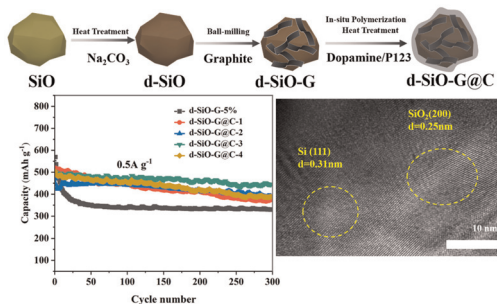
14409



### A gas-selective Zn-MOF exhibits selective sensing of Fe<sup>3+</sup> ions by doping with Tb<sup>3+</sup>

Zhi-Gang Wang,\* Tao Ding and Jie Fei\*

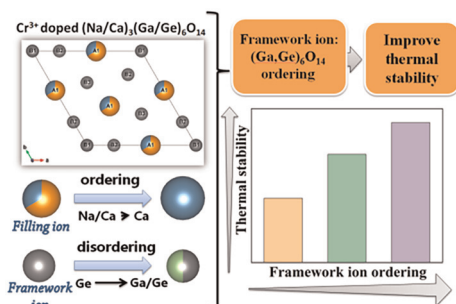
14416



### Effective disproportionation of SiO induced by Na<sub>2</sub>CO<sub>3</sub> and improved cycling stability via PDA-based carbon coating as anode materials for Li-ion batteries

Jialiang Chen, Ronghua Chen, Wei Yang, Hanbo Zou and Shengzhou Chen\*

14423



### Influence of framework disordering on the luminescence performance of Cr<sup>3+</sup>-doped near-infrared phosphors: a case study of A<sub>3</sub>B<sub>6</sub>O<sub>14</sub>-type hosts

Jiahao Feng, Shaojian Xu, Ruijing Fu, Yue Guo, Qingguang Zeng and Dawei Wen\*

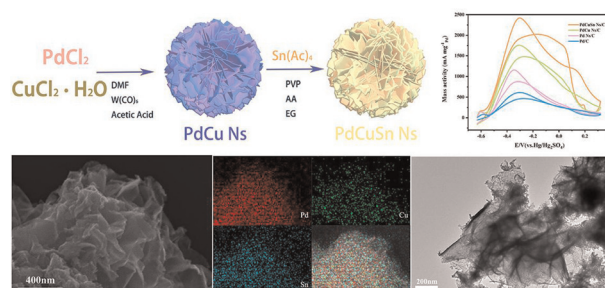


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14428

## Sn-doped PdCu alloy nanosheet assemblies as an efficient electrocatalyst for formic acid oxidation

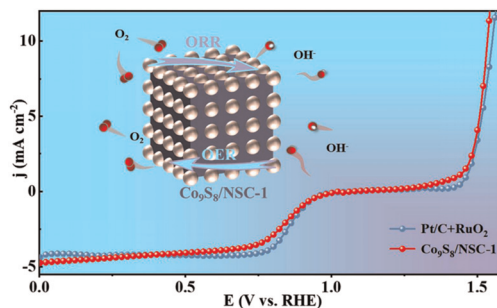
Fu-Kai Yang, Yue Fang, Fang-Fang Li, Wei-Li Qu\* and Chao Deng



14435

N,S co-doped porous carbon with Co<sub>9</sub>S<sub>8</sub> prepared with a Co-FF-derived Co<sub>3</sub>O<sub>4</sub> template: a bi-functional electrocatalyst for rechargeable zinc–air batteries

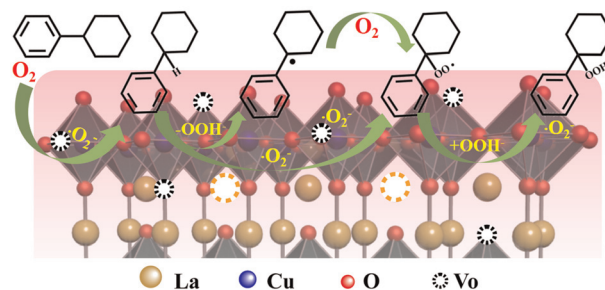
Qihao Wu, Tao Xie, Li Zhang,\* Hui Ding, Heju Gao, Jiahui Jiang and Guancheng Xu\*



14443

A-site defective La<sub>2-x</sub>CuO<sub>4</sub> perovskite-type oxides for efficient oxidation of cyclohexylbenzene

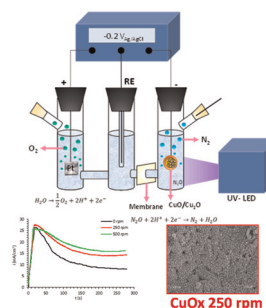
Yanlin Xiao, Lingyu Zhong, Guoli Fan and Feng Li\*



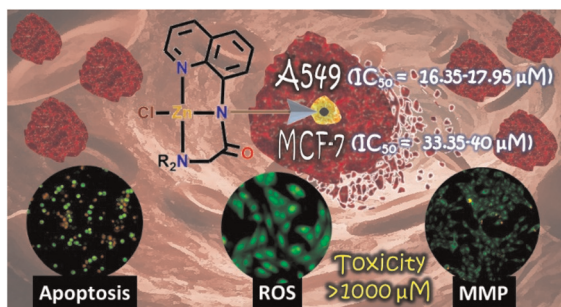
14453

Synthesis of CuO<sub>x</sub> nanostructures in novel electrolytes under hydrodynamic conditions for photoelectrochemical applications

G. Sánchez-García, A. Pérez-Calvo, R. M. Fernández-Domene, E. Blasco-Tamarit, R. Sánchez-Tovar\* and B. Solsona\*



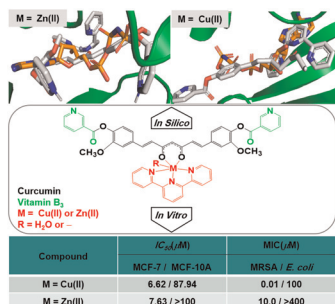
14465



### Are Zn(II) pincer complexes efficient apoptosis inducers? a deep insight into their activity against A549 lung cancer cells

Athulya Das and Muniyandi Sankaralingam\*

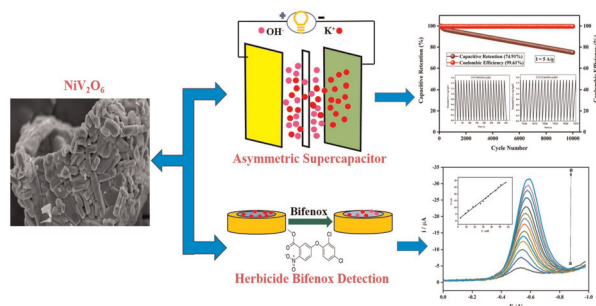
14477



### A curcumin-nicotinoyl derivative and its transition metal complexes: synthesis, characterization, and *in silico* and *in vitro* biological behaviors

Marziyeh-Sadat Hosseini, Hassan Hadadzadeh,\* Seyede Zohreh Mirahmadi-Zare,\* Hossein Farrokhpour, Fatemeh Aboutalebi and Dina Morshedi

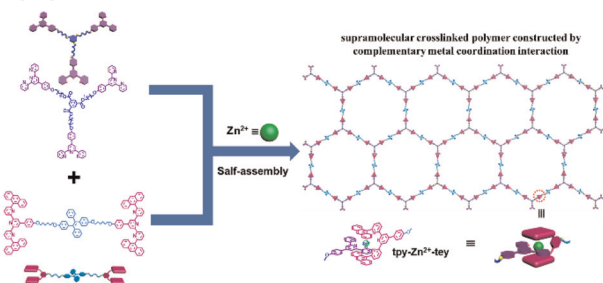
14491



### Performance analysis of three distinct $\text{Ni}_x\text{V}_2\text{O}_y$ single-phase nano self-assemblies for asymmetric supercapacitor fabrication and effective detection of low-concentration hazardous herbicide

Govarthini Seerangan Selvam, Jesman Sthevan Kovil Pitchai, Kumaravel Ammasai and Thangaraju Dheivasigamani\*

14510



### A fluorescent controllable supramolecular crosslinked polymer constructed by complementary metal coordination interaction

Xiaohui Huang, Shengyong Liu, Shenghui Rao, Jiangyue Lu, Ke Xiao, Yang Bai,\* Zhe Huang and Hui Li\*

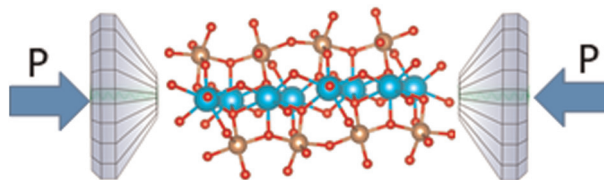


## PAPERS

14517

## Exploring the crystal structure and properties of ytterbium orthoantimonate under high pressure

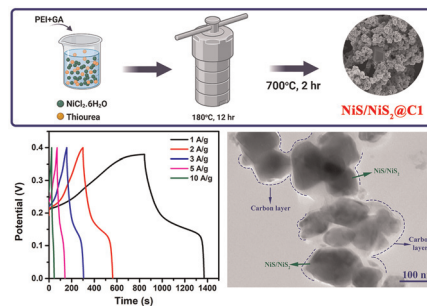
Alka B. Garg, Sinhue Lopez-Moreno, Pablo Botella-Vives, Oscar Gomis, Enrico Bandiello, Hussien Osman, Catalin Popescu and Daniel Errandonea\*



14527

## Tailoring the phase composition of carbon-coated nickel sulfides to achieve a high specific capacitance

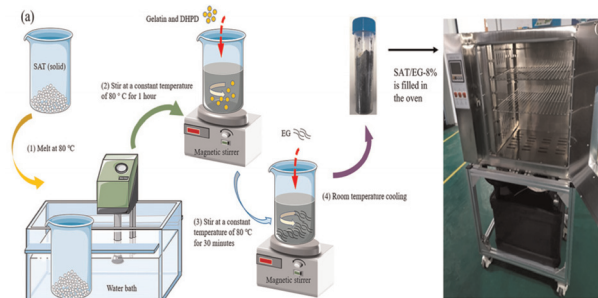
Ü. Kurtan,\* B. Üstün, H. Aydın and S. N. Koç



14537

## Preparation, thermal storage properties and application of sodium acetate trihydrate/expanded graphite composite phase change materials

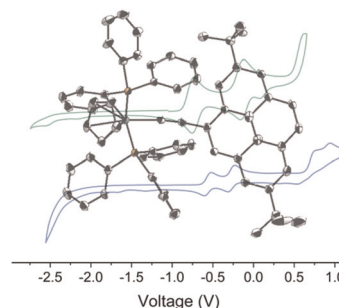
K. W. Wang, Ting Yan,\* L. C. Meng and W. G. Pan\*



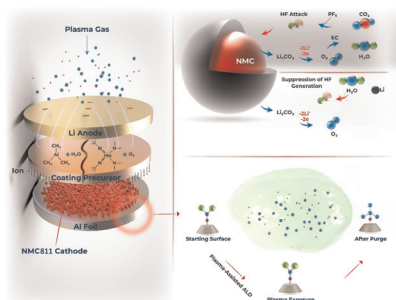
14549

## Functionalised organometallic photoswitches containing dihydropyrene units

Angus A. Gillespie, Max Roemer, David Jago, Alexandre N. Sobolev, Gareth L. Nealon, Peter R. Spackman, Stephen A. Moggach and George A. Koutsantonis\*



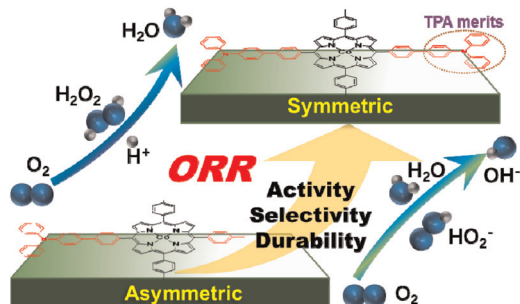
14564



### Tailoring the performance of the $\text{LiNi}_{0.8}\text{Mn}_{0.1}\text{Co}_{0.1}\text{O}_2$ cathode using $\text{Al}_2\text{O}_3$ and $\text{MoO}_3$ artificial cathode electrolyte interphase (CEI) layers through plasma-enhanced atomic layer deposition (PEALD) coating

Vijaykumar V. Jadhav,\* Zilong Zhuang,\*  
Seyedeh Nooshin Banitaba, Sanaz Khademolqorani,  
Dayakar Gandla, Fuming Zhang and Daniel Q. Tan\*

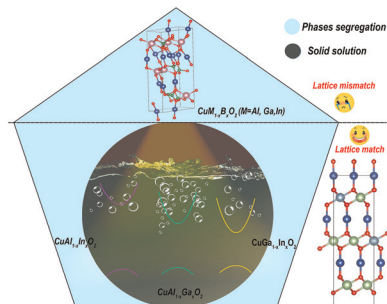
14573



### Effects of tuning the structural symmetry of cobalt porphyrin on electrocatalytic oxygen reduction reactions

Yuqin Wei, Yongdi Liang, Qijie Wu, Zhaoli Xue, Lei Feng,  
Jianming Zhang and Long Zhao\*

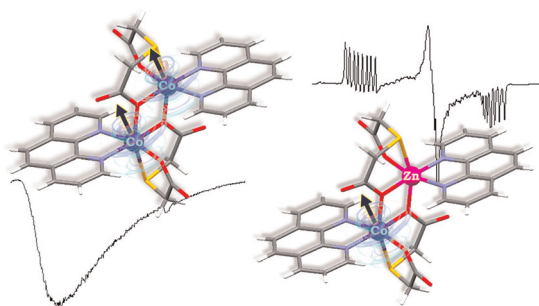
14583



### Tuning electronic structure for enhanced photocatalytic performance: theoretical and experimental investigation of $\text{CuM}_{1-x}\text{M}'_x\text{O}_2$ ( $\text{M}, \text{M}' = \text{B}, \text{Al}, \text{Ga}, \text{In}$ ) solid solutions

Xian-Lan Chen, Bao-Feng Shan, Zong-Yan Zhao,\*  
Jin Zhang and Qing-Ju Liu\*

14595



### Synthesis, structure, and characterisation of a ferromagnetically coupled dinuclear complex containing $\text{Co(II)}$ ions in a high spin configuration and thiodiacetate and phenanthroline as ligands and of a series of isomorphous heterodinuclear complexes containing different $\text{Co} : \text{Zn}$ ratios

Ana L. Pérez, Axel Kemmerer, Alejandro J. Zapata,  
Rosana Sartoris, Pablo J. Gonzalez, Raul Urteaga,  
Ricardo Baggio, Sebastián Suarez, Carlos A. Ramos,  
Sergio D. Dalosto, Alberto C. Rizzi and  
Carlos D. Brondino\*

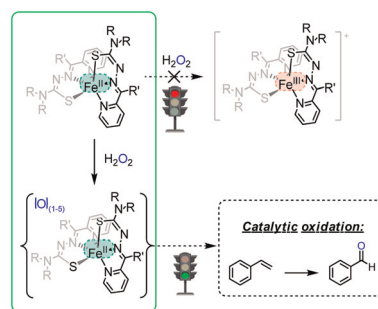


## PAPERS

14606

**Fe(II) complexes of pyridine-substituted thiosemicarbazone ligands as catalysts for oxidations with hydrogen peroxide**

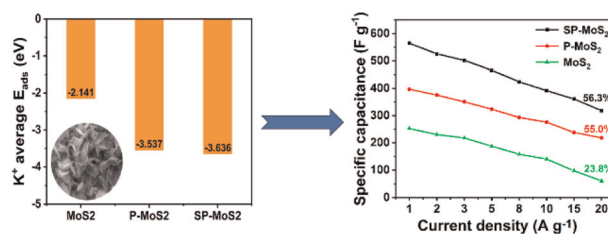
Carmen E. Castillo, Miguel A. González, Andrés G. Algarra, M. Jesús Fernández-Trujillo, Montserrat Ferrer, Manuel Martínez\* and Manuel G. Basallote\*



14613

**Phosphorus doped molybdenum disulfide regulated by sodium chloride for advanced supercapacitor electrodes**

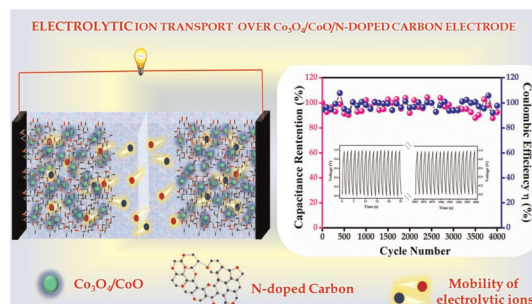
Yunan Li,\* Jiayin Meng, Xiaotian Wang, Meng Song, Mingli Jiao, Qi Qin\* and Liwei Mi\*



14621

**Polymer-assisted synthesis of Co<sub>3</sub>O<sub>4</sub>/CoO microballs decorated N-doped carbon for symmetric supercapacitor**

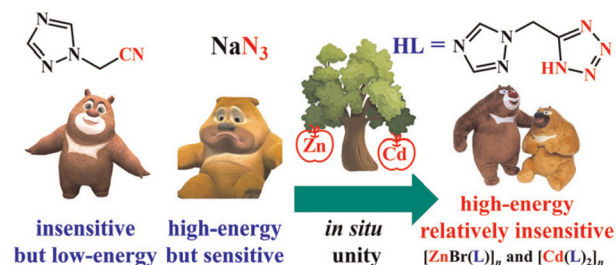
Kiruthika Paramasivam, Sornalatha Manickam, Karthick Sivalingam Nallathambi and Hemalatha Kuzhandaivel\*



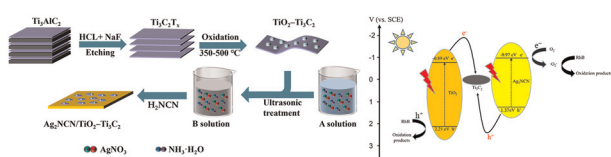
14632

**Refinement of sensitive azides *via in situ* generated azole-based metal-organic frameworks towards stable energetic materials**

Hao-Hui Xie, Jiao-Lin Weng, Ji-Xing Song, Wen-Jing Yang, Qin Wang, Meng Cui, Fa-Kun Zheng, Ren-Hui Qiu and Jian-Gang Xu\*



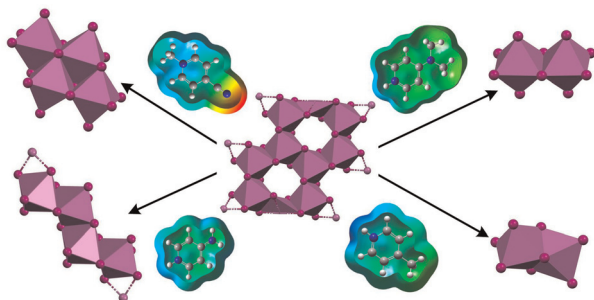
14640



### Nano-sized aggregate $\text{Ti}_3\text{C}_2\text{-TiO}_2$ supported on the surface of $\text{Ag}_2\text{NCN}$ as a Z-scheme catalyst with enhanced visible light photocatalytic performance

Haidong Yu, Xuan Cao,\* Shuji Zhang, Shanxia Luo, Liang Feng, Xiaoyu An, Haibing Jiang\* and Shuhua Yao\*

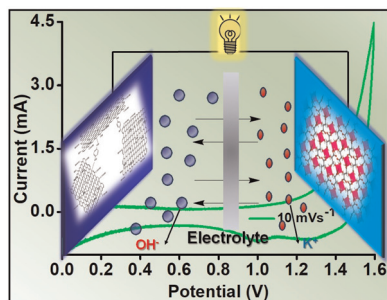
14649



### Influence of crystal structure and composition on optical and electronic properties of pyridinium-based bismuth iodide complexes

Gisya Abdi,\* Marlena Gryl,\* Andrzej Sławek, Ewelina Kowalewska, Tomasz Mazur, Agnieszka Podborska, Krzysztof Mech, Piotr Zawal, Anurag Pritam, Angelika Kmita, Lulu Alluhaibi, Alexey Maximenko, Chakkooth Vijayakumar and Konrad Szacitowski\*

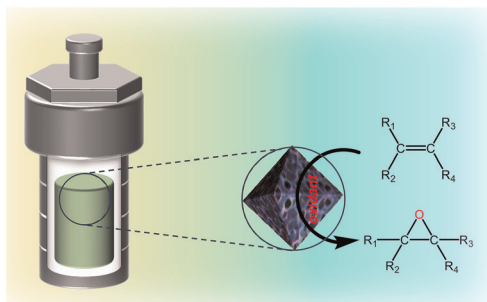
14663



### Co-containing metal-organic framework for high-performance asymmetric supercapacitors with functionalized reduced graphene oxide

Soumen Khan, Sayan Halder, Santanu Chand, Anup Kumar Pradhan and Chanchal Chakraborty\*

14676



### Boosting the catalysis of cesium phosphomolybdate encapsulated in hierarchical porous UiO-66 by microenvironment modulation for epoxidation of alkenes

Dianwen Hu,\* Songsong Miao, Pengfei Zhang, Siyuan Wu, Yu-Peng He and Qingwei Meng\*

