

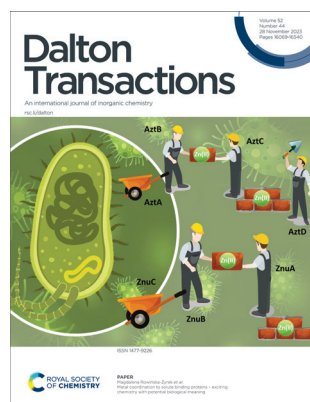
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ISSN 1477-9226 CODEN DTARAF 52(44) 16069–16540 (2023)



### Cover

See Magdalena Rowińska-Żyrek *et al.*, pp. 16140–16150.

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### Inside cover

See Adinarayana Doddi *et al.*, pp. 16151–16158.

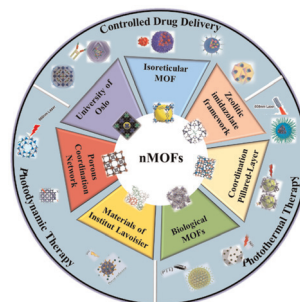
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Huijuan Duan, Fang Wang, Weizhe Xu, Gang Sheng, Zhaogang Sun\* and Hongqian Chu\*

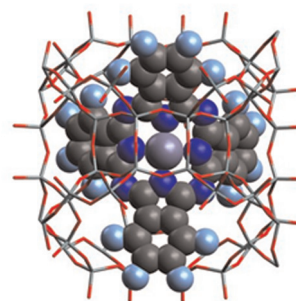


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Ethan P. Iaia, Ademola Soyemi, Tibor Szilvási\* and James W. Harris\*



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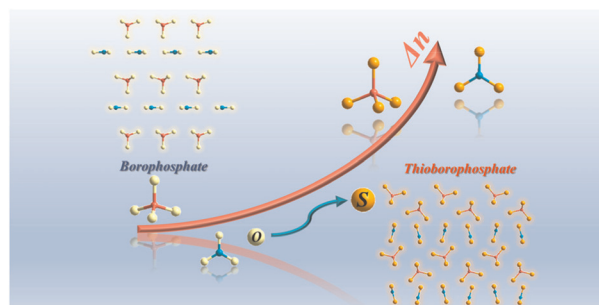


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**Ba<sub>3</sub>(BS<sub>3</sub>)(PS<sub>4</sub>): the first alkaline-earth metal thioborate–thiophosphate with strong optical anisotropy originating from planar [BS<sub>3</sub>] units**

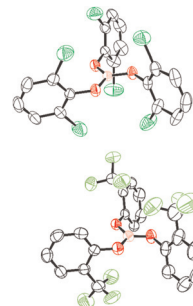
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**Reactivity of a series of triaryl borates, B(OAr<sup>x</sup>)<sub>3</sub>, in hydroboration catalysis**

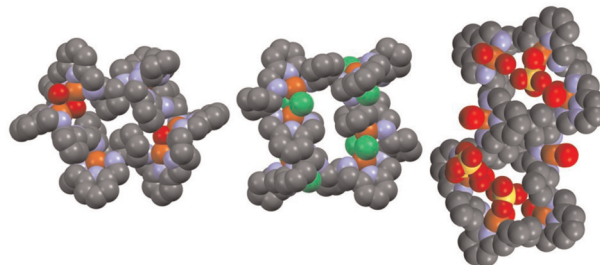
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**Hexa- and octanuclear copper(II) complexes with a tetraeicosaza amine macrocycle**

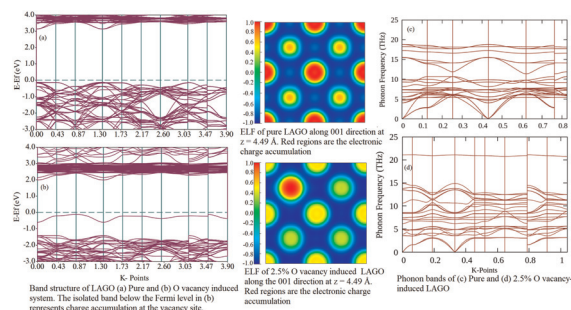
Dominika Fedorowicz, Katarzyna Ślepokura, Julia Ktāk, Maciej Witwicki and Janusz Gregoliński\*



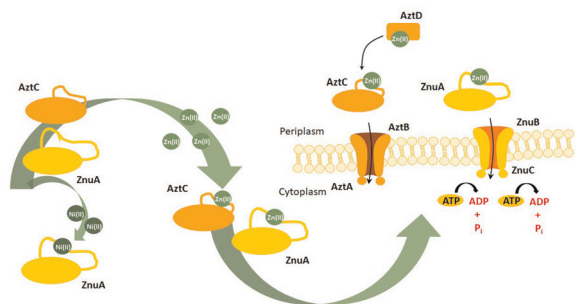
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Chaithanya P. Bhat, Ashwin K. Godbole and Debashis Bandyopadhyay\*



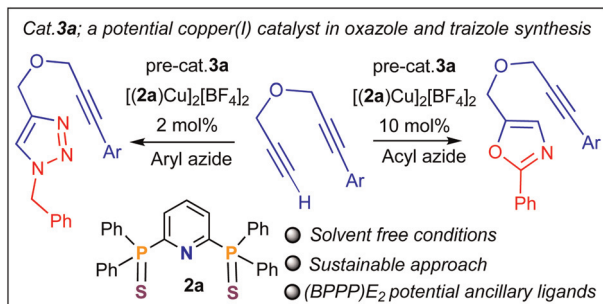
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### Metal coordination to solute binding proteins – exciting chemistry with potential biological meaning

Kinga Garstka, Denise Bellotti, Joanna Wąty, Henryk Kozłowski, Maurizio Remelli and Magdalena Rowińska-Żyrek\*

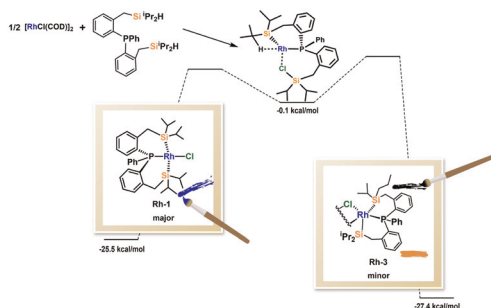
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### Dicationic copper(I) complexes bearing ENE (E = S, Se) pincer ligands; catalytic applications in regioselective cyclization of 1,6-diynes

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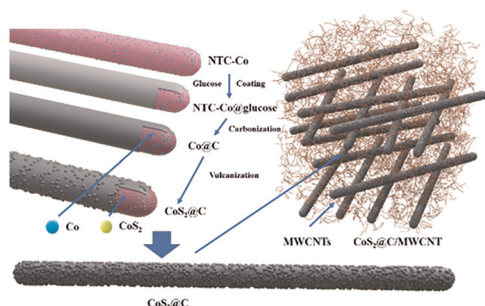
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### Unexpected alkyl isomerization at the silicon ligand of an unsaturated Rh complex: combined experiment and theory

Niroshani S. Abeynayake, Nghia Le, Gabriela Sanchez-Lecuona, Bruno Donnadieu, Charles Edwin Webster\* and Virginia Montiel-Palma\*

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### CoS<sub>2</sub>@C catalyzes polysulfide conversion to promote the rate and cycling performances of lithium–sulfur batteries

Yufei Zhang, Xinhang Liu, Qi Jin, Fengfeng Han, Zhiguo Zhang, Xitian Zhang\* and Lili Wu\*

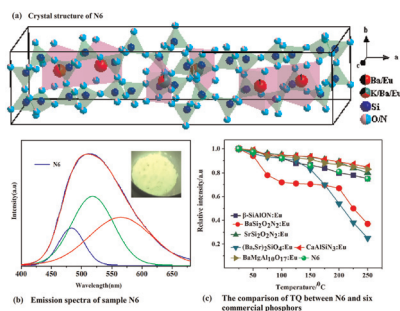


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# Oxynitride $\text{K}_2\text{Ba}_{6.72}\text{Si}_{16}\text{O}_{40-1.5y}\text{N}_y\text{:0.28Eu}^{2+}$ phosphor with high thermal stability realized by crystal field engineering

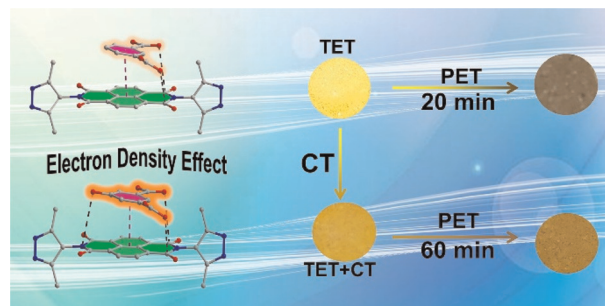
Aijun Mao,\* Xinwei Wang, Yali Guo, Xuejie Zhai and Pai Lv



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# Electron density effect of aromatic carboxylic acids in naphthalenediimide-based coordination polymers: from thermal electron transfer and charge transfer to photoinduced electron transfer

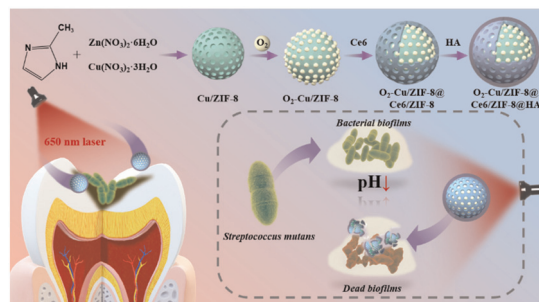
Gao-Peng Li,\* Jing Zhang, Wan-Wan Ren, Si-Nan Wang, Ying-Xia Wang, Yun-Long Fu\* and Yao-Yu Wang\*



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# Oxygen-carrying acid-responsive Cu/ZIF-8 for photodynamic antibacterial therapy against cariogenic *Streptococcus mutans* infection

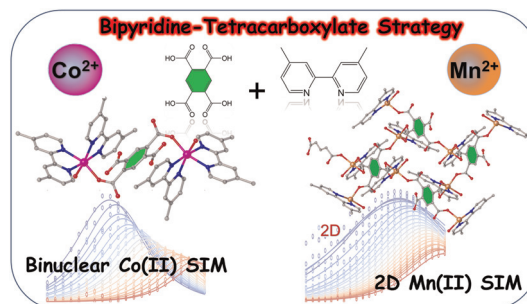
Ruifeng Wang, Qiyan Pan, Fang Li, Jingying Guo, Yaru Huo, Chao Xu, Manwen Xiong, Ziyong Cheng, Min Liu\* and Jun Lin\*



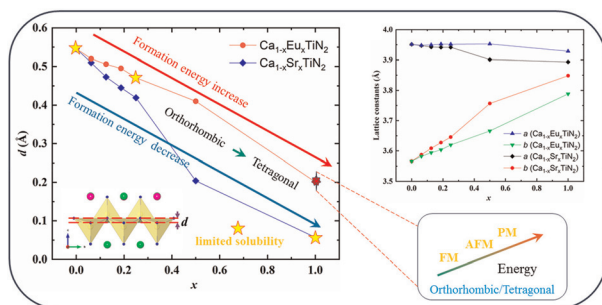
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# Binuclear cobalt(II) and two-dimensional manganese(II) coordination compounds self-assembled by mixed bipyridine-tetracarboxylic ligands with single-ion magnet properties

Dong-Qing Wu,\* Kusum Kumari, Yi Wan, Xueling Gao, Mengxi Guo, Genyan Liu, Dong Shao,\* Bin Zhai and Saurabh Kumar Singh\*



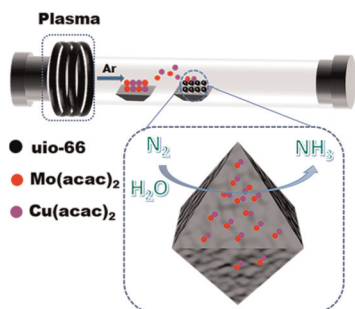
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### KCoO<sub>2</sub>-type layered nitrides Ca<sub>1-x</sub>Eu<sub>x</sub>TiN<sub>2</sub>: structural stability, electrical properties and Eu coordination chemistry

Junwei Liu, Bowen Zhang, Shenglin Lu, Xing Ming\* and Xiaojun Kuang\*

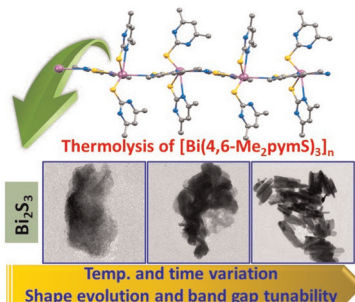
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### Double-single-atom MoCu-embedded porous carbons boost the electrocatalytic N<sub>2</sub> reduction reaction

Zhiya Han, Chenbao Lu, Senhe Huang, Xinyu Chai, Zhenying Chen, Xintong Li, Jilong Wang, Jingshun Zhang,\* Boxu Feng,\* Sheng Han\* and Rongbin Li\*

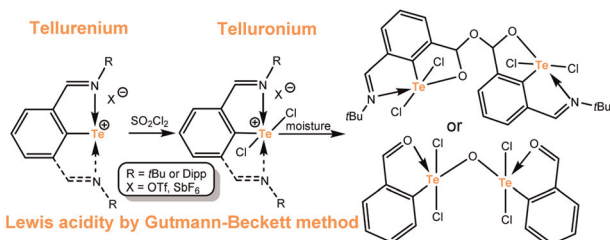
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### Controlled synthesis of photoresponsive bismuthinite (Bi<sub>2</sub>S<sub>3</sub>) nanostructures mediated through a new 1D bismuth-pyrimidylthiolate coordination polymer as a molecular precursor

Atharva Yeshwant Kulkarni, Gourab Karmakar, Alpa Y. Shah, Sandeep Nigam, Gayatri Kumbhare, Adish Tyagi,\* Raymond J. Butcher, Rohit Singh Chauhan\* and N. Naveen Kumar

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### N-Coordinated tellurenum(II) and telluronium(IV) cations: synthesis, structure and hydrolysis

Martin Hejda, Lukáš Doležal, Jan Blahut, Emanuel Hupf, Jiří Tydlitát, Roman Jambor, Aleš Růžicka, Jens Beckmann\* and Libor Dostál\*

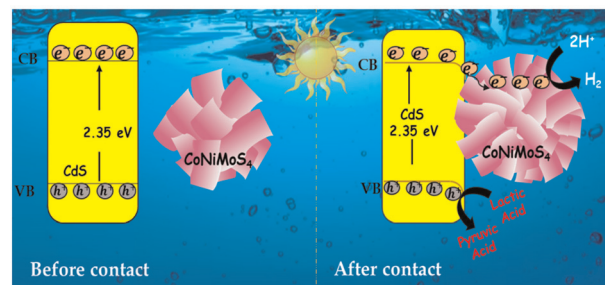


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### Positioning hydrogen reaction sites by constructing CdS/CoNiMoS<sub>4</sub> heterojunctions for efficient photocatalytic hydrogen evolution

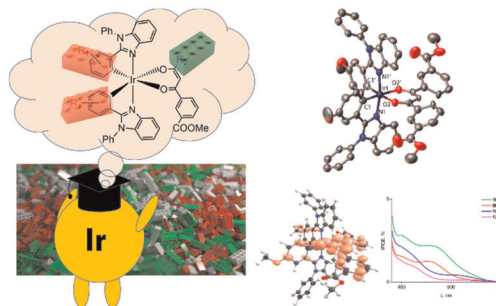
Pooja Varma, Rama Krishna Chava, Chunli Liu, Tae Kyu Kim and D. Amaranatha Reddy\*



16261

### Rational design of efficient photosensitizers based on cyclometalated iridium(III) complexes with 2-arylbenzimidazole and aromatic 1,3-diketone ligands

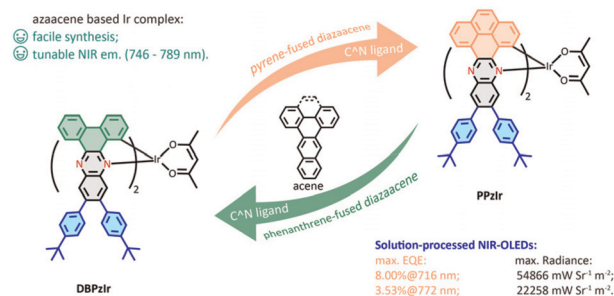
Sergei V. Tatarin, Elizaveta A. Meshcheriakova, Sergey A. Kozyukhin, Victor V. Emets and Stanislav I. Bezzubov\*



16276

### Azaacene containing iridium(III) phosphors: elaboration of the $\pi$ -conjugation effect and application in highly efficient solution-processed near-infrared OLEDs

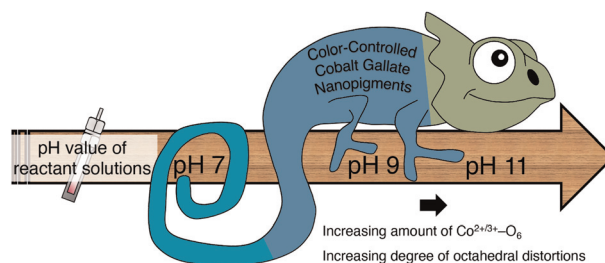
Min Li, Li Wang, Caifa You,\* Denghui Liu, Kai Zhang and Weiguo Zhu\*



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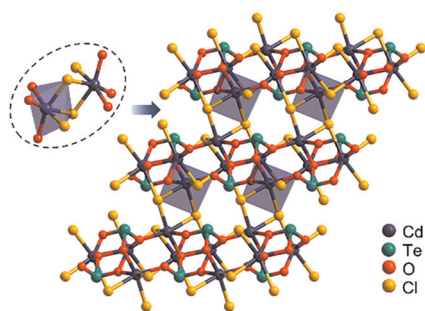
### Color-controlled nonstoichiometric spinel-type cobalt gallate nanopigments prepared by supercritical hydrothermal synthesis

Bo Xie, Chiya Numako, Takashi Naka and Seiichi Takami\*



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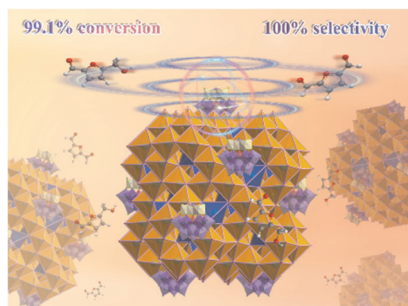
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### Synthesis, structure and characterization of $\text{Cd}_2\text{TeO}_3\text{Cl}_2$ with unprecedented $[\text{Cd}_2\text{O}_6\text{Cl}_4]$ octahedral dimers

Linan Wang, Chen Bai, Yingying Kong, Maqsood Iqbal, Yu Chu\* and Junjie Li\*

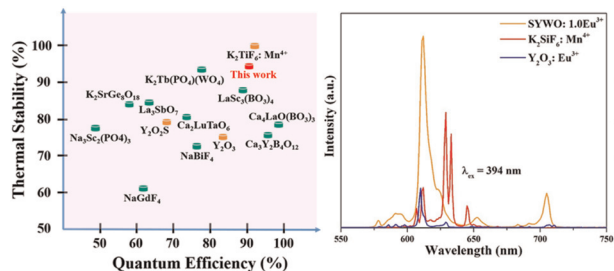
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### Enhanced catalysis of a vanadium-substituted Keggin-type polyoxomolybdate supported on the $\text{M}_3\text{O}_4/\text{C}$ ( $\text{M} = \text{Fe}$ or $\text{Co}$ ) surface enables efficient and recyclable oxidation of HMF to DFF

Yun-Dong Cao, Wen-Xia Mu, Mengdi Gong, Lin-Lin Fan,\* Jie Han, Hong Liu,\* Bin Qi and Guang-Gang Gao\*

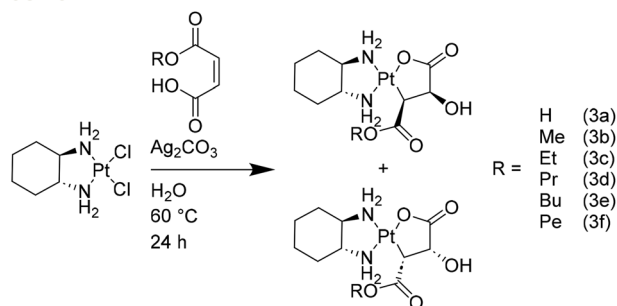
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### Limited energy migration and circumscribed multiphonon relaxation produced non-concentration quenching in a novel dazzling red-emitting phosphor

Yue Wang, Kexin Zhao, Bohuai Shao, Chuang Wang\* and Ge Zhu\*

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### Not the usual suspect – an unexpected organometallic product during the synthesis of cytotoxic platinum(II) complexes

Thomas Maier, Judith Wutschitz, Natalie Gajic, Michaela Hejl, Klaudia Cseh, Sebastian Mai, Michael A. Jakupiec, Mathea S. Galanski\* and Bernhard K. Keppler\*

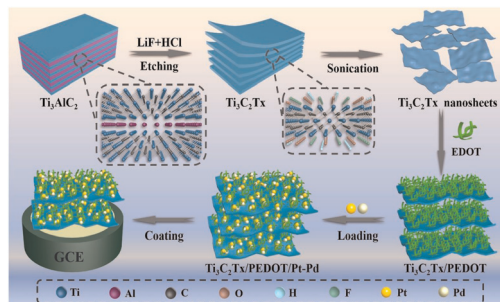


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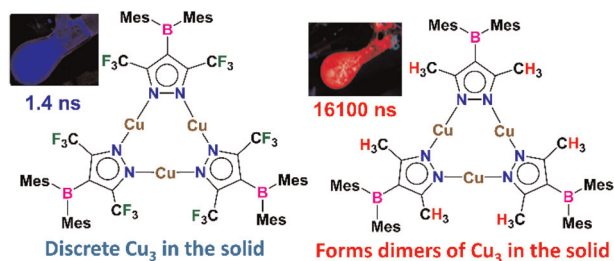
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**Green synthesis of carbon-supported ultrafine ZnS nanoparticles for superior lithium-ion batteries**Ying-Yi Han, Xuefei Zhang, Bi-Cui Chen,  
Pei-Wen Huang, Yun Chai, Xiao-Hui Wu\* and Zailai Xie\*

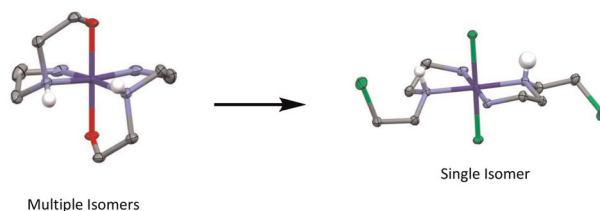
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**PEDOT-embellished  $\text{Ti}_3\text{C}_2\text{Tx}$  nanosheet supported Pt–Pd bimetallic nanoparticles as efficient and stable methanol oxidation electrocatalysts**Shuyue Xie, Fangfei Liu, Tursun Abdiryim,\* Xiong Liu,  
Ruxangul Jamal,\* Yanyan Song, Mariyam Niyaz,  
Yajun Liu, Hujun Zhang and Xinsheng Tang

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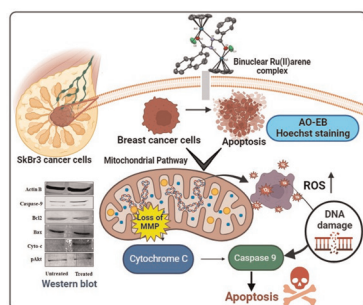
**Filling the gap with a bulky diaryl boron group: fluorinated and non-fluorinated copper pyrazolates fitted with a dimesityl boron moiety on the backbone**Mukundam Vanga, Benjamin T. Diroll,\*  
Álvaro R. Muñoz-Castro\* and H. V. Rasika Dias\*

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**Synthesis of nitrogen mustards on cobalt(III)**Rasika J. Kariyawasam, Ramin Zibaseresht, Matthew  
I. J. Polson, Joanna C. C. Houlihan, Jan L. Wikaira and  
Richard M. Hartshorn\*

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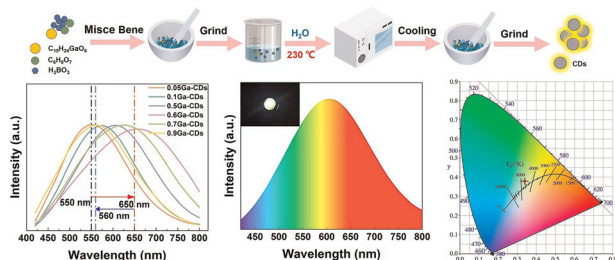
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### Naphthoyl benzhydrazine–decorated binuclear arene Ru(II) complexes as anticancer agents targeting human breast cancer cells

Arunachalam Abirami, Umapathy Devan, Rengan Ramesh,\* Arockiam Antony Joseph Velanganni and Jan Grzegorz Matecki

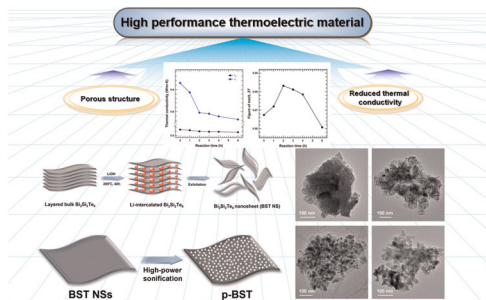
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### Bright solid-state luminescence and high-temperature resistance of Ga-doped carbon dots with ultra-wideband white emission for light-emitting diodes

Xiao Gao, Hongquan Yu,\* Zhanwen Han, Baojiu Chen,\* Jiashi Sun and Xiangping Li

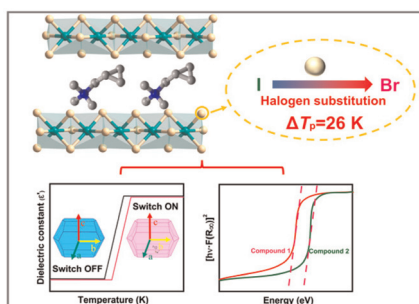
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### Highly porous thermoelectric composites with high figure of merit and low thermal conductivity from solution-synthesized porous Bi<sub>2</sub>Si<sub>2</sub>Te<sub>6</sub> nanosheets

Dabin Park, Minsu Kim and Jooheon Kim\*

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### The halogen substitution strategy of inorganic skeletons triggers dielectric and band gap regulation of hybrid perovskites

Xiao-Tong Sun, Ying-Yu Zhang, Yan Han, Xiao-Ping Wang, Jie Li, Jun-Yi Li, Hao-Fei Ni, Da-Wei Fu\* and Zhi-Xu Zhang\*

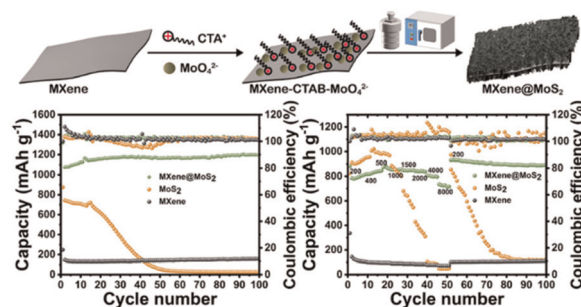


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16413

### Few-layer MoS<sub>2</sub> nanosheets vertically supported on Ti<sub>3</sub>C<sub>2</sub>-MXene sheets promoting lithium storage performance

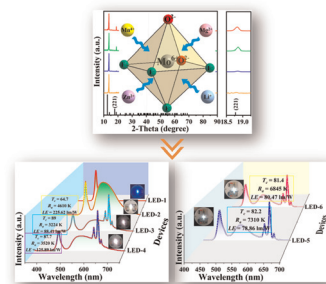
Hankun Tan, Lei Zhang, Kaiyue Gao, Li Sun,\*  
Yihe Zhang\* and Feng Xie



16421

### Optical enhancement of highly efficient organic–inorganic oxyfluoride red phosphors *via* the cation co-doping strategy

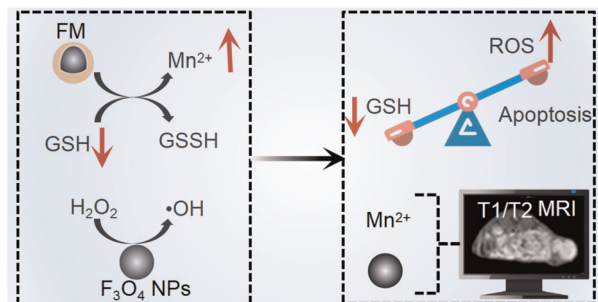
Xiaoyi Liu, Haiming Cheng, Hu Wang, Zhu Wen,  
Guixia Liu,\* Shengda Liu, Dan Li, Jinxian Wang,  
Wensheng Yu and Xiangting Dong



16433

### Dual-targeting nanotheranostics for MRI-guided enhanced chemodynamic therapy of hepatoma *via* regulating the tumor microenvironment

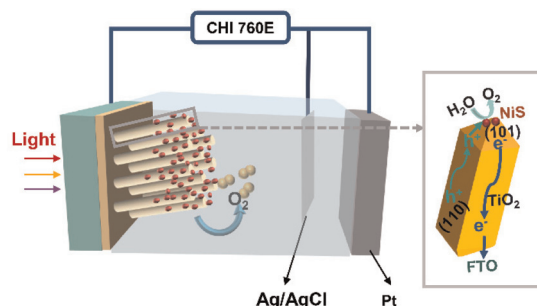
Jinwu Liu, Hong Qu, Lifeng Hang, Yiqiang Sun,  
Wuming Li, Yiyu Chen, Hong Li, Wei Wen,\*  
Yanqiu Feng\* and Guihua Jiang\*



16442

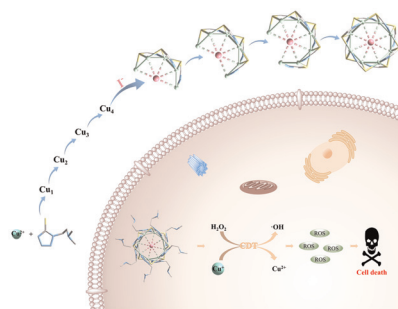
### Enhanced photoelectrochemical performance of NiS-modified TiO<sub>2</sub> nanorods with a surface charge accumulation facet

Suyi Yang, Baoyuan Wang, Rui Zhao, Liting Wei and  
Jinzhao Su\*



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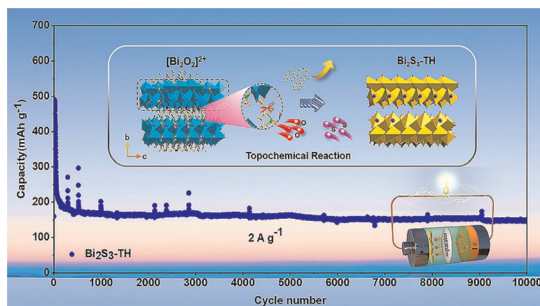
16451



### Stepwise formation of a chemodynamic therapy agent of {Cu<sub>8</sub>} macrocyclic complex recognized by iodide ions

Sudi Huang, Jingjing Zhong, Xinyi Huang, Yuqing Jia, Zhaoguo Hong and Fu-Ping Huang\*

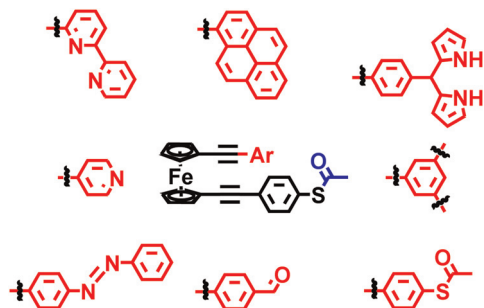
16456



### A topochemical reaction induced the formation of Bi<sub>2</sub>S<sub>3</sub> micro-straws from a Bi-MOF for an ultra-long Zn storage life

Lei Gou,\* Kai Liang, Wen-Yan Wang, Ya-Ting Lei, Shou-Lin Xie, Ding-Kai Wei, Dong-Lin Li and Xiao-Yong Fan\*

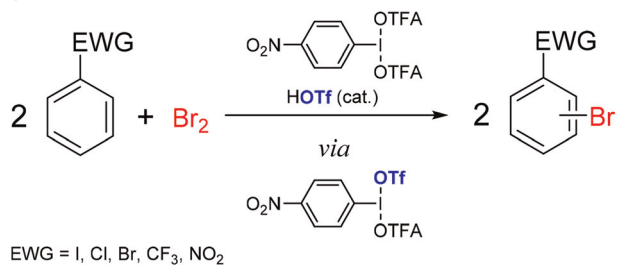
16465



### A convenient synthesis of ferrocene-(ethynylphenyl)thioacetates

Troy L. R. Bennett and Nicholas J. Long\*

16472



### Electrophilic activation of molecular bromine mediated by I(III)

Lachlan Sharp-Bucknall, Tania, Marcus Sceney, Lachlan Barwise and Jason L. Dutton\*



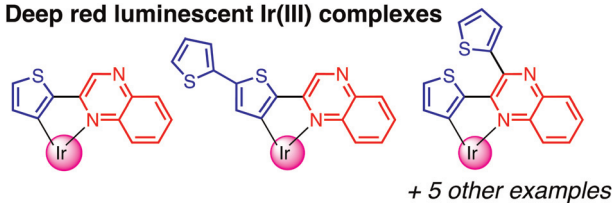
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16480

## 2-(Thienyl)quinoxaline derivatives and their application in Ir(III) complexes yielding tuneable deep red emitters

Sophie A. Fitzgerald, Ellie N. Payce, Peter N. Horton, Simon J. Coles and Simon J. A. Pope\*

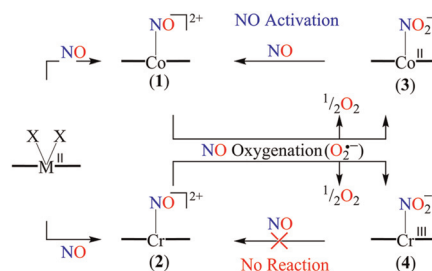
### Deep red luminescent Ir(III) complexes



16492

## Mechanistic insights into nitric oxide oxygenation (NOO) reactions of {CrNO}<sup>5</sup> and {CoNO}<sup>3</sup>

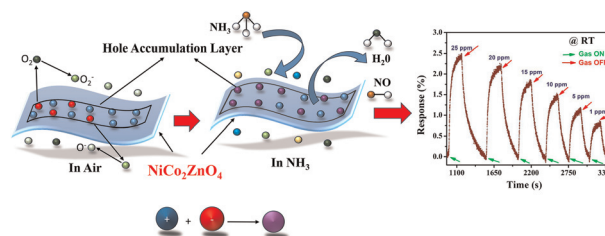
Akshaya Keerthi C. S., Sandip Das, Kulbir, Prabhakar Bhardwaj, Md Palashuddin Sk and Pankaj Kumar\*



16500

## A room-temperature gas sensor based on 2D Ni–Co–Zn ternary oxide nanoflakes for selective and sensitive ammonia detection

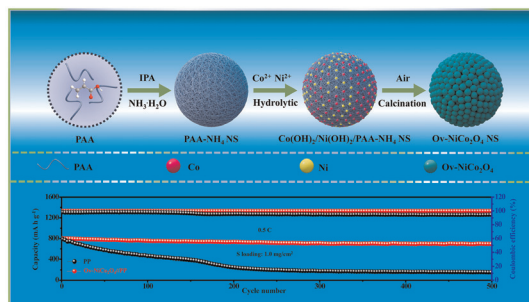
Sourav Karmakar, Avik Sett, Palash Chandra Maity, Gairik Karmakar, Rinky Sha,\* Tarun Kanti Bhattacharyya and Indranil Lahiri



16513

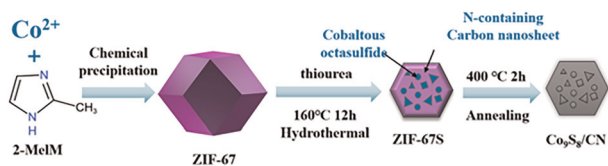
## A well-dispersed O<sub>v</sub>-NiCo<sub>2</sub>O<sub>4</sub> nanosphere modified separator for Li–S batteries

Yumeng Gao, Siyu Liu, Jiudi Zhang, Xiaoyang Chen, Bing Han, Yali Wang, Jianhua Guo, Zhanshuang Jin,\* Junjie Li and Xudong Meng\*



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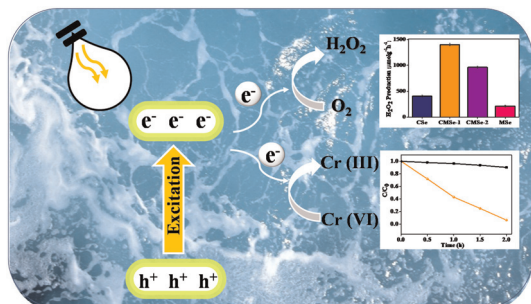
16519



### Topochemical and phase transformation induced Co<sub>9</sub>S<sub>8</sub>/NC nanosheets for high-performance sodium-ion batteries

Yining Li, Shimei Wu, Chilin Liu, Zhiting Liu, Wei Yang, Yufei Zhang\* and Haosen Fan\*

16525



### Compositionally engineered Cd–Mo–Se alloyed QDs toward photocatalytic H<sub>2</sub>O<sub>2</sub> production and Cr(VI) reduction with a detailed mechanism and influencing parameters

Jyotirmayee Sahu, Sriram Mansingh, Bhagyashree Priyadarshini Mishra, Deeptimayee Prusty and Kulamani Parida\*

