

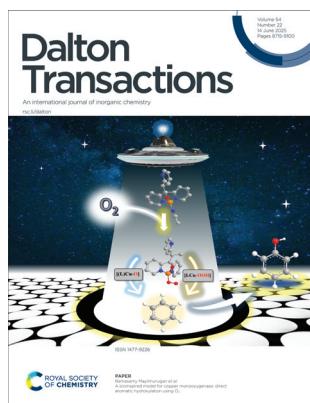
# Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica  
[rsc.li/dalton](http://rsc.li/dalton)

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 54(22) 8715–9100 (2025)



### Cover

See Ramasamy Mayilmurugan et al., pp. 8788–8799.

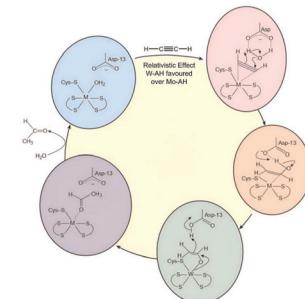
Image reproduced by permission of Ramasamy Mayilmurugan from *Dalton Trans.*, 2025, **54**, 8788.

## PERSPECTIVES

8728

### Relativistic effect behind the molybdenum vs. tungsten selectivity in enzymes

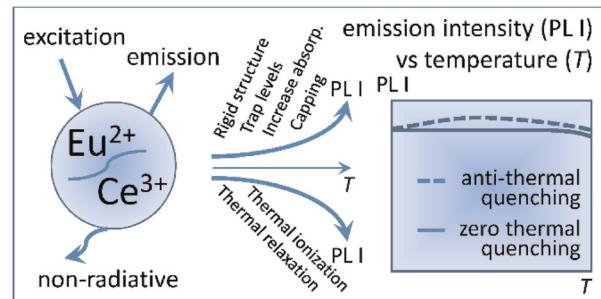
Udita Das, Ankita Das\* and Asim K. Das\*



8745

### Research progress on the design and regulation of Eu<sup>2+</sup>/Ce<sup>3+</sup>-activated anti-/zero thermal quenching phosphors

Shujuan Zhao, Yue Han, Shixun Lian and Jilin Zhang\*



GOLD  
OPEN  
ACCESS

# EES Solar

Exceptional research on solar  
energy and photovoltaics

Part of the EES family

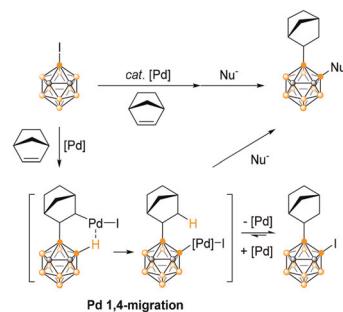
Join  
in | Publish with us  
[rsc.li/EESSolar](http://rsc.li/EESSolar)

## COMMUNICATIONS

8764

**Catalytic regioselective 3,4-difunctionalization of 3-iodo-o-carborane via Pd migration**

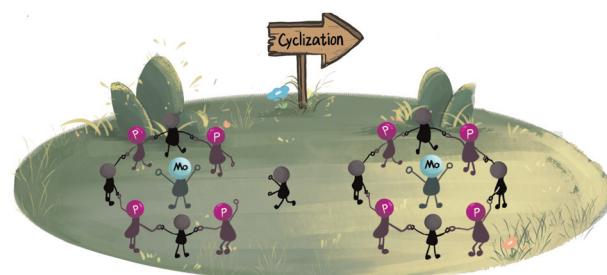
Xianren Jiang, Chang-Hua Ding, Zaozao Qiu\* and Zuowei Xie



8769

**Synthesis of planar macrocyclic tetradentate phosphine–Mo complexes**

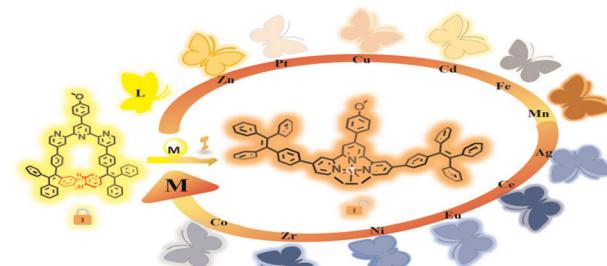
Xinchao Wang and Qian Liao\*



8773

**Anti AIE single molecule fluorescent switches for detection of heavy metal ions**

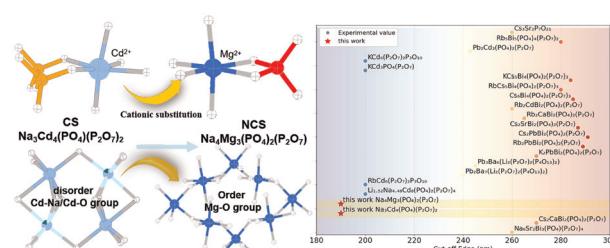
Yi-Mei Peng, Yu-Ming Guan, Qixia Bai, Gang Chen, Wei-Quan Lin, Jing-Xian Pang, Wen-Bo Xu, Pingshan Wang\* and Ting-Zheng Xie\*



8778

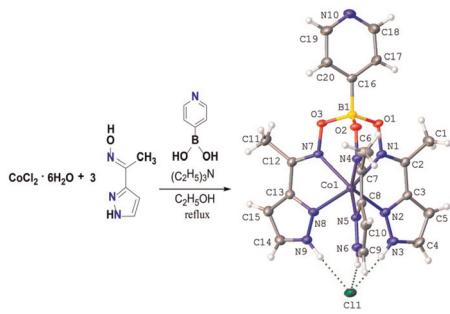
**Two mixed P–O anionic phosphates with a distinctive structural transformation and deep ultraviolet cutoff edge**

Lei Wu, Hongyu Huang, Jialong Wang, Qun Jing,\* Yi Huang, Xue Yu and Zhaohui Chen\*



## COMMUNICATIONS

8783

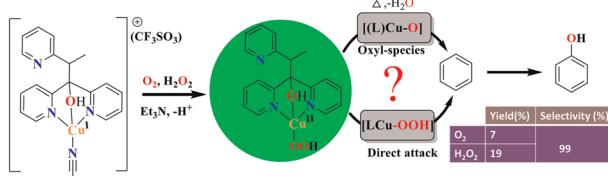


### First pyridyl-terminated trigonal-prismatic cobalt(II) cage-like complex as prospective N-donor highly paramagnetic three-dimensional ligand and probe

Svetlana A. Belova, Alexander S. Belov, Margarita G. Bugaenko, Anastasia A. Danshina, Alexey I. Dmitriev, Mikhail V. Zhidkov, Denis V. Korchagin and Yan Z. Voloshin\*

## PAPERS

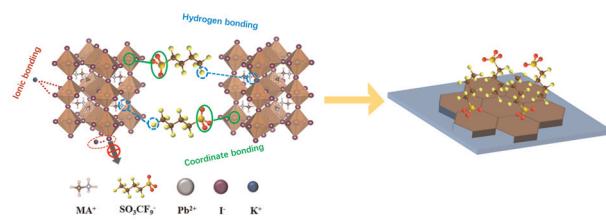
8788



### A bioinspired model for copper monooxygenase: direct aromatic hydroxylation using $\text{O}_2$

Ramamoorthy Ramasubramanian, Karunanithi Anandababu, Mukesh Kumar and Ramasamy Mayilmurugan\*

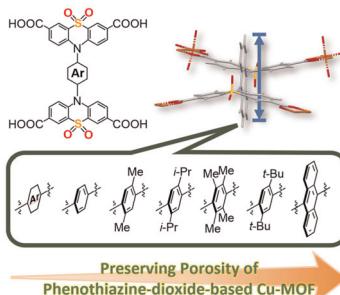
8800



### Rationally tailored passivator with multisite surface-anchors for suppressing ion migration toward air-stable perovskite solar cells

Dandan Luo, Dingyu Xia, Fei Wang,\* Chong Jia, Qiang Zhao, Xinhua Li and Yiqing Chen\*

8813



### Phenothiazine-dioxide-based Cu-MOFs: preserving porosity through the incorporation of substituents into organic linkers

Koh Sugamata,\* Riko Furukawa, Natsuki Amanokura and Mao Minoura\*

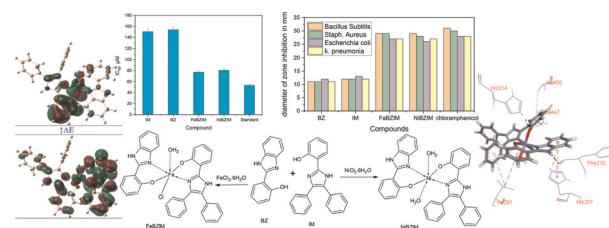


## PAPERS

8819

**Fe(III) and Ni(II) imidazole-benzimidazole mixed-ligand complexes: synthesis, structural characterization, molecular docking, DFT studies, and evaluation of antimicrobial and anti-inflammatory activities**

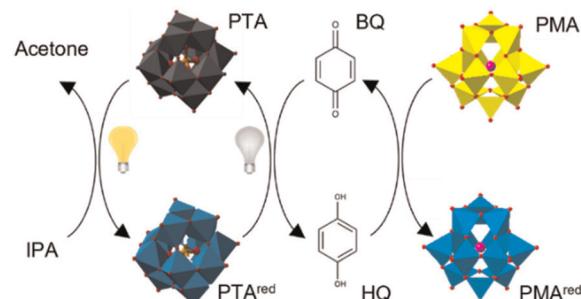
Nourah Almulhim, Hany M. Abd El-Lateef,\* Mohamed Gouda, Mai M. Khalaf and Aly Abdou\*



8834

**Photoinduced electron transfer cascade between Mo- and W-based polyoxometalates**

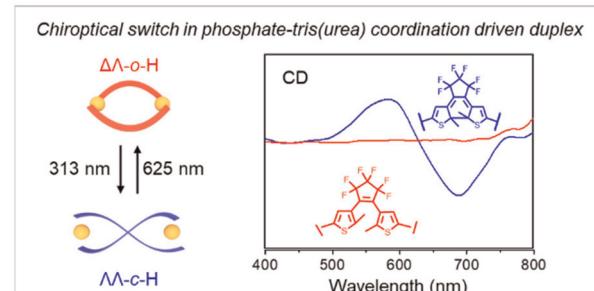
Manu Sánchez, Ana González, Emma Guerrero-Ortega, Vipul Bansal\* and Jose M. Dominguez-Vera\*



8841

**Dithienylethene-based supramolecular chiroptical switch in phosphate-coordination-driven 2 : 2 duplexes**

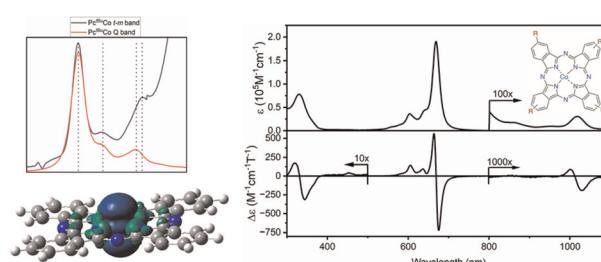
Mengxue Lu, Xiao-Wen Sun, Ji Wang, Wei Zhao,\* Hongwei Ma,\* Xiao-Juan Yang and Biao Wu\*



8846

**Identifying charge-transfer and triplet-multiplet states in Co(I), Co(II), and Co(III) phthalocyanines using (magneto)optical spectroscopy and (TD)DFT calculations**

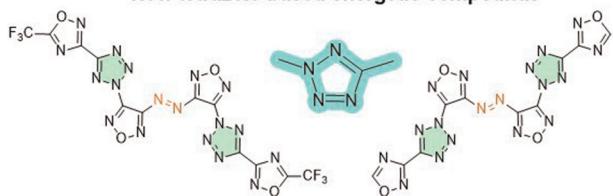
Breanna E. Muldowney, Dustin E. Nevonen, Towhidi Illius Jeaydi, Christopher J. Ziegler,\* Brendon J. McNicholas\* and Victor N. Nemykin\*



## PAPERS

8870

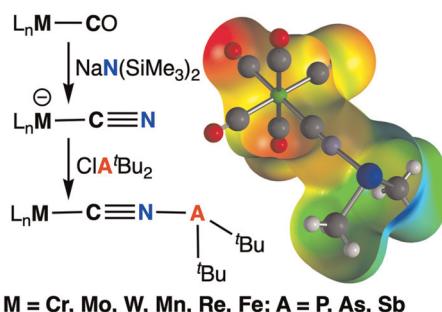
## New tetrazole-based energetic compounds



## Exploring the energetic potential of 2,5-disubstituted tetrazoles: a case of 2,5-bis(oxadiazolyl)tetrazoles

Vera A. Sereda, Ekaterina V. Dubasova, Ivan V. Ananyev, Ekaterina K. Kosareva and Leonid L. Fershtat\*

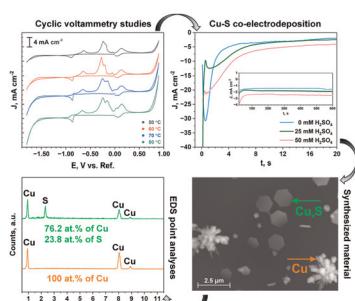
8881



## Pnictogen-functionalised isocyanide ligands

Ryan M. Kirk and Anthony F. Hill\*

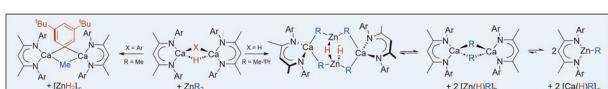
8888



## A study of simultaneous electrodeposition of Cu and S in choline chloride-ethylene glycol deep eutectic solvents: a pathway to the synthesis of copper sulfide hexagons

Mateusz Szczerba,\* Joanna Kapusta-Kołodziej, Mateusz M. Marzec, Krystian Sokołowski and Agnieszka Brzózka\*

8903



## Alkylzinc-mediated transmetallation of a calcium hydride

Kyle G. Pearce,\* Mary F. Mahon and Michael S. Hill

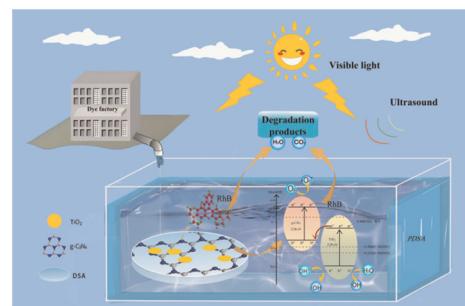


## PAPERS

8908

**Photocatalytic double-sided adhesives: preparation, photocatalytic degradation of dye solutions and durable performance**

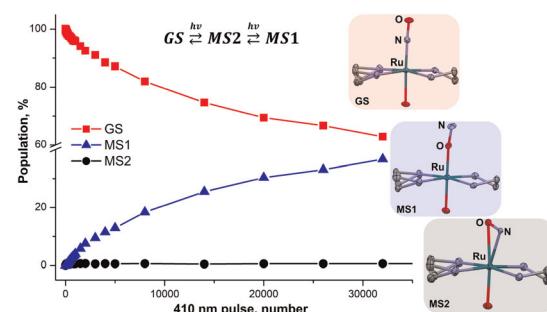
Shinglei Feng, Miao Zhao, Yu Ning, Huisen Dong, Hanshuo Wei, Xiaoying Liang\* and Jielu Zhu



8918

**Exploring the photoswitching pathways and efficiency of NO isomerization in ethylenediamine ruthenium nitrosyl complexes**

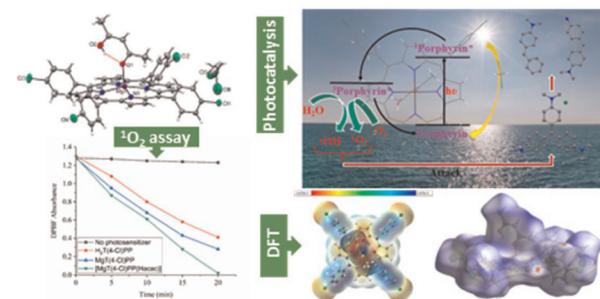
Artem A. Mikhailov,\* Appolinaire Tchoutchoua Tiognou, Anastasiya O. Brovko, Gennadiy A. Kostin and Dominik Schaniel



8932

**Acetylacetone as an axial ligand in metalloporphyrin: its first crystal structure, coordination chemistry, and potential application as an efficient photosensitizer**

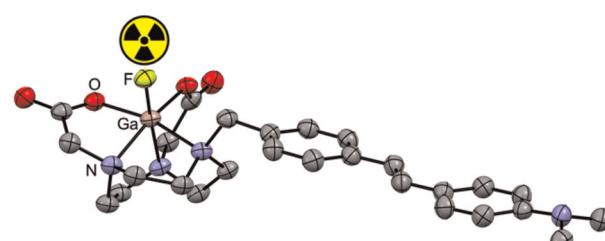
Abdul K. Choudhury and Jagannath Bhuyan\*



8945

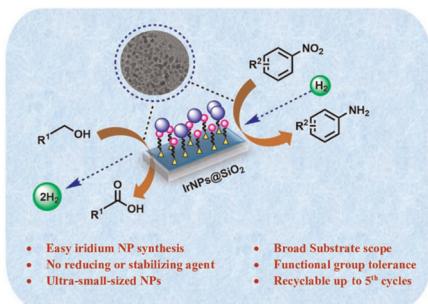
**A gallium fluoride-18 complex containing a pentadentate macrocyclic ligand with a dimethylaminostilbene functional group designed for diagnostic imaging of Alzheimer's disease**

HuiJing Koay, Mohammad B. Haskali, Jessica Van Zuylenkom, Carleen Cullinane, Catriona A. McLean, Jonathan M. White, Peter D. Roselt and Paul S. Donnelly\*



## PAPERS

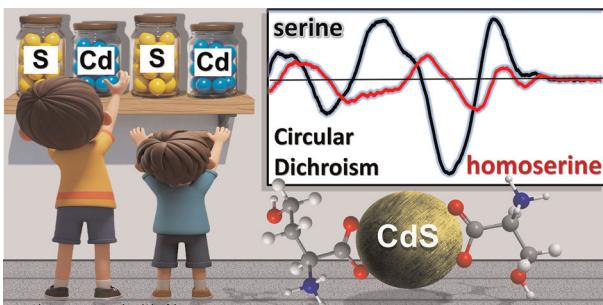
8956



**Phosphine-assisted synthesis of a nanostructured iridium catalyst for acceptorless dehydrogenation of alcohols and chemoselective hydrogenation of nitroarenes**

Jyotishma Baruah and Pankaj Das\*

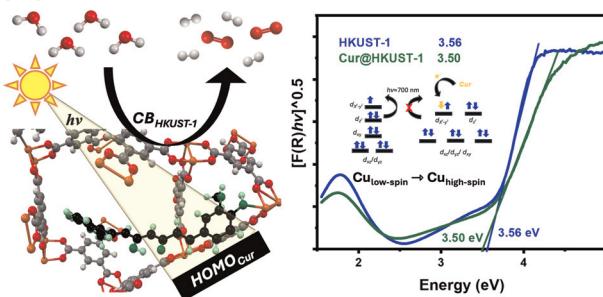
8972



**Cadmium sulfide quantum dots functionalized with serine, proline, and aspartic acid homologs to study the influence of ligand size on the induced circular dichroism**

Milan Balaz,\* Yoonbin A. Joh and Krisztina Varga\*

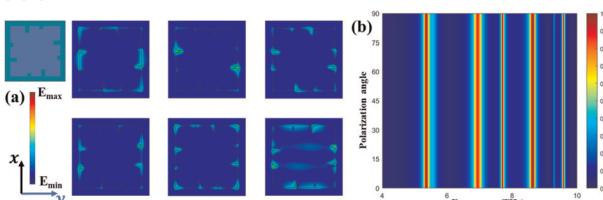
8979



**Novel curcumin@HKUST-1 composite with enhanced visible light harvesting capacities for photocatalytic applications**

Luis A. Alfonso-Herrera, Jesús S. Rodríguez-Girón, J. Edgar Carrera-Crespo, Francisco Tzompantzi, Daniel Sánchez-Martínez, Alejandra M. Navarrete-López\* and Hiram I. Beltrán\*

8993



**Highly tunable rotationally symmetric multi-band terahertz absorber with enhanced sensing capabilities**

Baowei Zhang, Mengsi Liu,\* Yifei Huang, Yiping Xu and Zao Yi\*

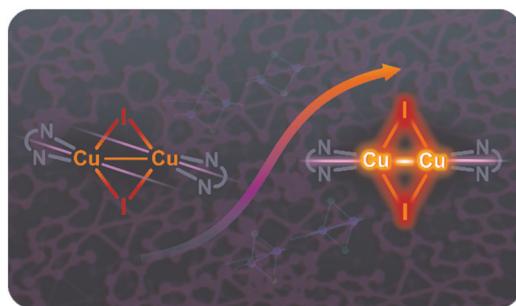


## PAPERS

9000

**Interplay of the Cu...Cu distance and coordination geometry as a factor affecting the quantum efficiency in dimeric copper(i) halide complexes with derivatives of 4-pyrazolylpyrimidine-2-thiol**

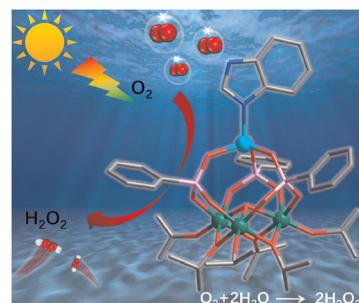
Sofia V. Skvortsova,\* Fyodor K. Verkhov,  
Elena B. Nikolaenkova, Marianna I. Rakhmanova,  
Tatiana E. Kokina, Taisiya S. Sukhikh,  
Nikita A. Shekhovtsov\* and Mark B. Bushuev\*



9016

**Precisely tailoring Lewis pairs in polyoxotitanium clusters for efficient photocatalytic production of hydrogen peroxide**

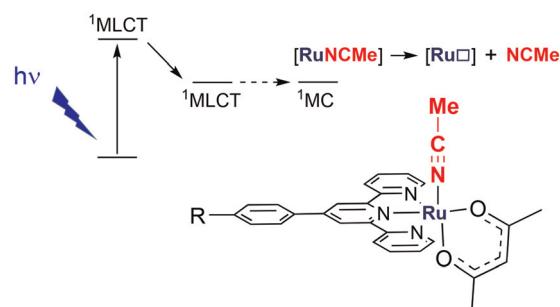
Mengke Gao, Shiming Zhang, Yayu Yan, Zehao Qian,  
Liyang Qin, Xiaoyu Liu, Qing-Rong Ding, Qiaohong Li,  
Xin Wu\* and Jian Zhang\*



9021

**Photo-release of acetonitrile in ruthenium(II) complexes with various substituted terpyridine ligands**

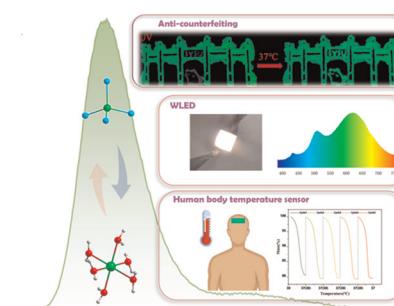
Vladyslav Mudrak, Pascal G. Lacroix,\* Pablo Labra-Vázquez, Marine Tassé, Sonia Mallet-Ladeira and Isabelle Malfant\*



9032

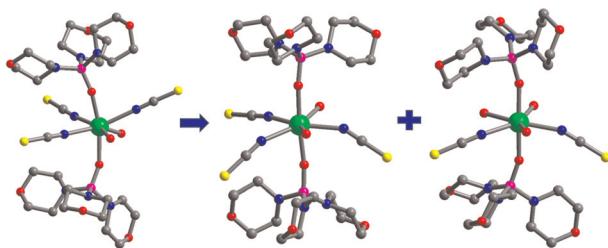
**Adaptive hydrogen-bonding strategy driven 0D manganese-based metal halides with multifunctional fluorescent applications**

Jiamin Liu, Yuntao Ruan, Qiaoqi Qin, Yong Shen,  
Zhengliang Wang, Daibin Kuang and Long Jiang\*



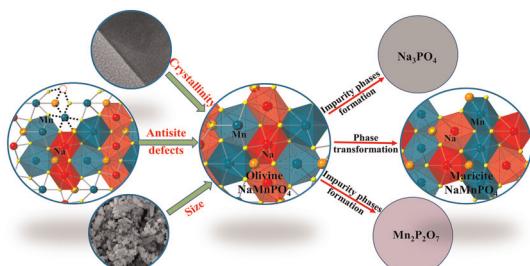
## PAPERS

9039

**Synergistic construction of highly symmetrical lanthanide single-ion magnets using neutral phosphoryl and anionic thiocyanate ligands**

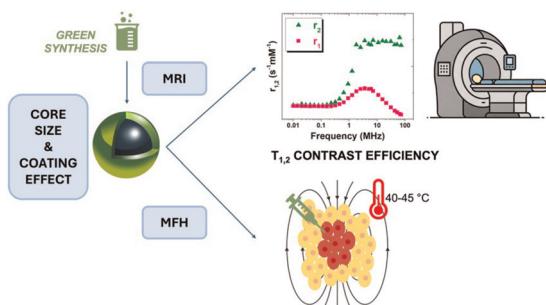
Bei Liu, Xiao-Yan Dong, Hui-Wen Gong, Zheng Sun, Rong Sun, Wen-Hua Zhu,\* Lei Zhang, Hao-Ling Sun,\* Man-Yun Zhao, Ning-Ning Huang, Qing-Yan Bian and Song Gao\*

9049

**On the thermal stability of olivine  $\text{NaMnPO}_4$** 

Han Xiao and Haisheng Fang\*

9057

**Iron oxide nanospheres: dual functionality as MRI contrast agents and magnetic fluid hyperthermia therapeutics**

Margherita Porru, Francesca Brero,\* Carlos Diaz-Ufano, Manuel Mariani, Francesco Orsini, Paolo Arosio, María del Puerto Morales and Alessandro Lascialfari

9069

**Syntheses and structures of cationic osmium bis( $\sigma$ -B-H) borane complexes**

Xiaowen Yang, Minghui Tian, Yongliang Wei, Feifei Han\* and Tongdao Wang\*

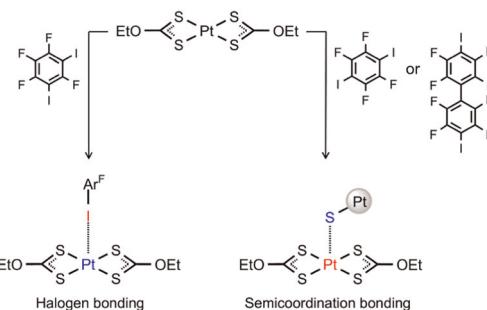


## PAPERS

9076

**Engineering metal site behavior: electrophilic-nucleophilic dualism in square-planar platinum(II) through geometry-controlled switching**

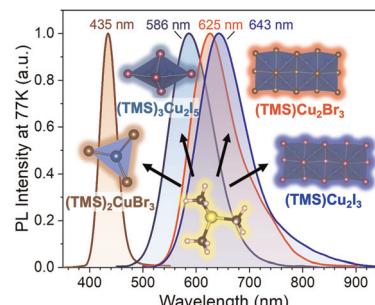
Anastasiya A. Eliseeva,\* Daniil M. Ivanov,  
Anton V. Rozhkov, Vadim Yu. Kukushkin and  
Nadezhda A. Bokach\*



9088

**Crystal structures and luminescence properties of halocuprates with trimethylsulfonium cations**

Andrey A. Petrov,\* Luyi Chen, Mingming Li,\*  
Sergey A. Fateev, Andrey V. Petrov, Victor N. Khustalev  
and Alexey B. Tarasov



## CORRECTIONS

9095

**Correction: Functional biomimetics for copper oxidases: interesting catalytic promiscuity of novel monocupper(II) complexes**

Vigneswara Chellam Ravisankar, Balasubramaniam Selvakumaran, Tamilarasan Ajaykumar and Mariappan Murali\*

9097

**Correction: Construction of ternary TiO<sub>2</sub>/CdS/IrO<sub>2</sub> heterostructure photoanodes for efficient glycerol oxidation coupled with hydrogen evolution**

Chenfeng Jiang, Yibo Ding, Jiayu Lin, Yi Sun, Wei Zhou, Xiaoyan Zhang,\* Hongbin Zhao, Weimin Cao and Danhong Cheng