

# Dalton Transactions

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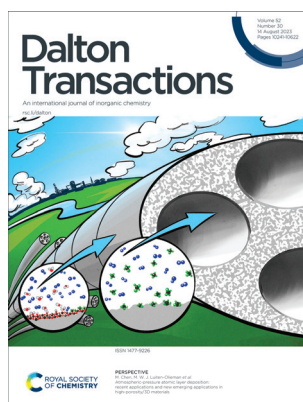
## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 52(30) 10241-10622 (2023)



**Cover**  
See Svilen Bobev *et al.*,  
pp. 10310–10322.

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10310.



**Inside cover**  
See M. Chen,  
M. W. J. Luiten-Olieman  
*et al.*, pp. 10254–10277.

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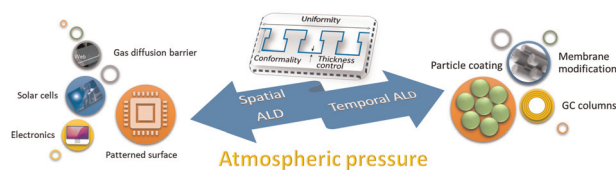
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## PERSPECTIVE

10254

### Atmospheric-pressure atomic layer deposition: recent applications and new emerging applications in high-porosity/3D materials

M. Chen,\* M. P. Nijboer, A. Y. Kovalgin, A. Nijmeijer,  
F. Roozeboom and M. W. J. Luiten-Olieman\*

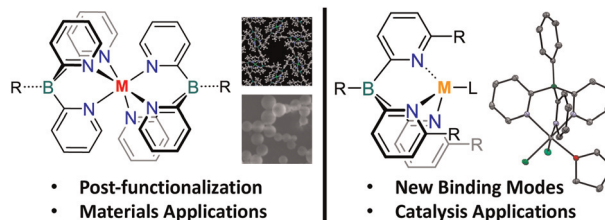


## FRONTIER

10278

### Tris(pyridyl)borates: an emergent class of versatile and robust polydentate ligands for catalysis and materials applications

James McQuade and Frieder Jäkle\*



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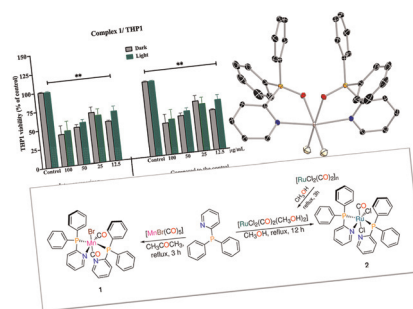


## COMMUNICATIONS

10286

***In vitro* cytotoxicity of Mn(II) and Ru(II) carbonyls with a diphenyl pyridyl phosphine coligand towards leukaemia**

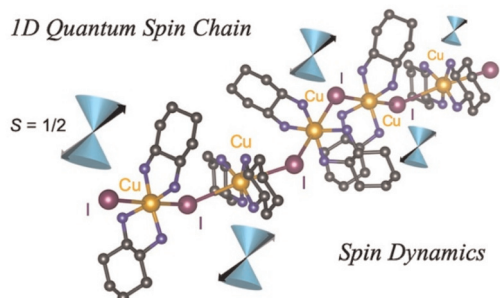
Ahmed M. Mansour,\* Rabaa M. Khaled, Krzysztof Radacki, Zeina Younes, Mariam Gamal, Beatrice Guirguis, Gamal A. E. Mostafa, Essam A. Ali and Ola R. Shehab



10294

**Spin dynamics in a Heisenberg weak antiferromagnetic chain of an iodide-bridged Cu(II) complex**

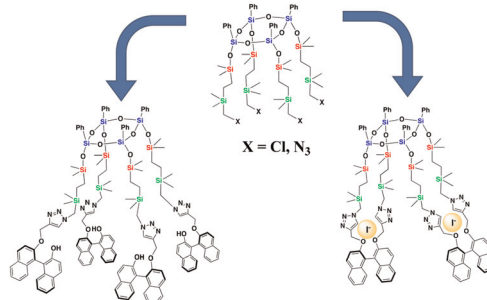
Masanori Wakizaka,\* Mirosław Arczyński, Shraddha Gupta, Shinya Takaishi and Masahiro Yamashita\*



10298

**BINOL and triazole-containing Janus rings and 29-8-29-membered tricyclic ladder-type hybridized siloxane: application in the fluorescence sensing of anions**

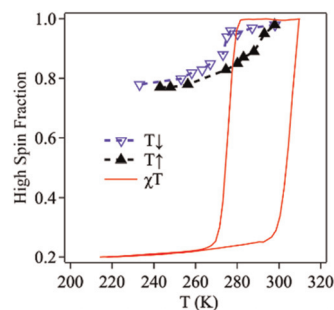
Zhanjiang Zheng,\* Niyaz Yagafarov, Zheng Xu, Armelle Ouali, Nobuhiro Takeda, Yujia Liu\* and Masafumi Unno\*



10305

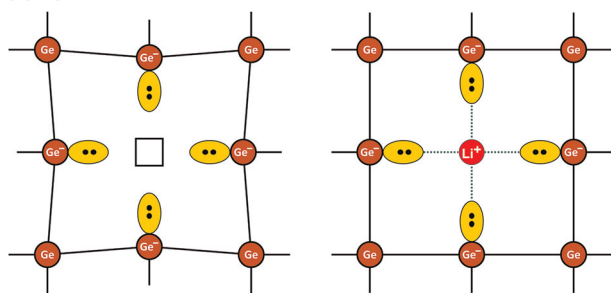
**Is the surface of Hofmann-like spin-crossover {Fe(pz)[Pt(CN)<sub>4</sub>]} the same as its bulk?**

Alejandro Martínez Serra, Archit Dhingra,\* María Carmen Asensio, José Antonio Real and Juan Francisco Sánchez Royo\*



## PAPERS

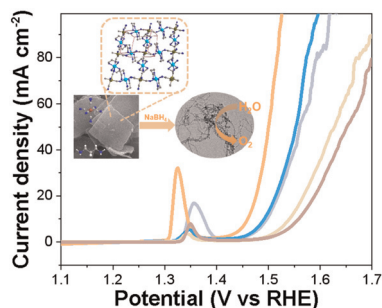
10310



### Lithium metal atoms fill vacancies in the germanium network of a type-I clathrate: synthesis and structural characterization of $\text{Ba}_8\text{Li}_5\text{Ge}_{41}$

Kowsik Ghosh, Alexander Ovchinnikov, Michael Baitinger, Mitja Krnel, Ulrich Burkhardt, Yuri Grin and Svilen Bobev\*

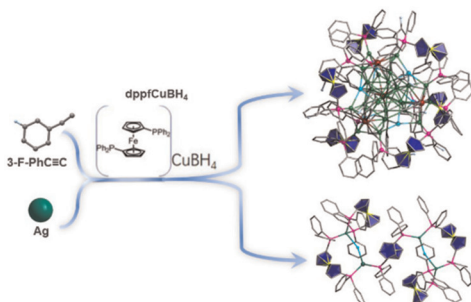
10323



### Ligand leaching enabling improved electrocatalytic oxygen evolution performance

Hongbo Zhou,\* Zi Wei, Albert Akeno Nyaaba, Ziliang Kang, Yashu Liu, Caiyao Chen, Jun Zhu, Xiafang Ji and Guoxing Zhu\*

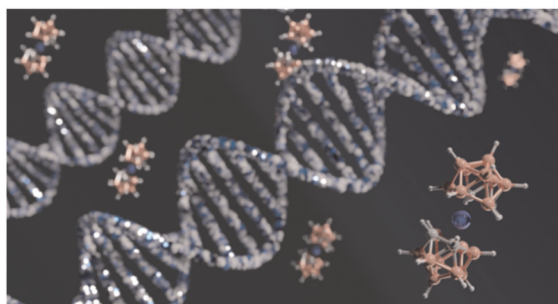
10332



### $\text{DppfCuBH}_4$ : new reducing agents for the synthesis of ferrocene-functionalized metal nanoclusters

Meng Wang, Simin Li, Huijun Chen, Xueli Sun, Jing Sun, Yanyuan Jia,\* Shuo Guo, Cunfa Sun\* and Hui Shen\*

10338



### Cobalt bis(dicarbollide) is a DNA-neutral pharmacophore

Krzysztof Fink,\* Jakub Cebula, Zdeněk Tošner, Mateusz Psurski, Mariusz Uchman and Tomasz M. Goszczyński

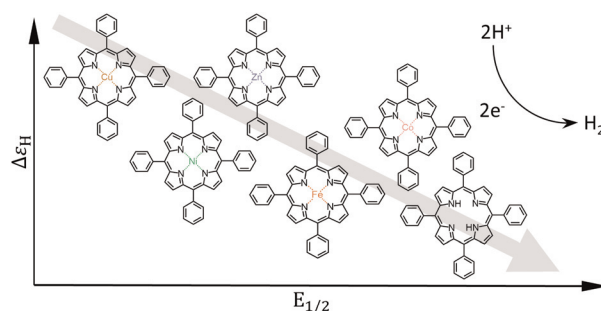


## PAPERS

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### Tetraphenylporphyrin electrocatalysts for the hydrogen evolution reaction: applicability of molecular volcano plots to experimental operating conditions

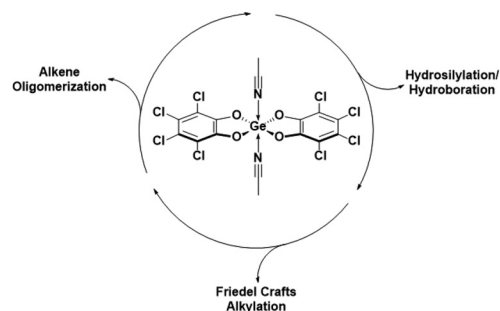
Felicia Zaar, C. Moyses Araujo, Rikard Emanuelsson, Maria Strømme and Martin Sjödin\*



10363

### Expanding the scope of bis(catecholato)germane catalysis: hydrosilylation, hydroboration, Friedel–Crafts alkylation and oligomerization

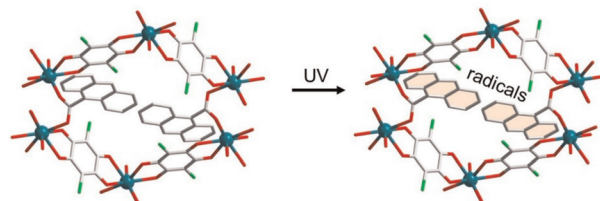
Andrew T. Henry, Dana A. R. Nanan and Kim M. Baines\*



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### Modulation of magnetization dynamics of an Er(III) coordination polymer by the conversion of a ligand to a radical using UV light

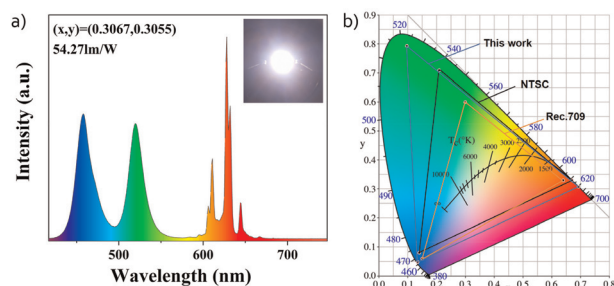
Xiaoshuang Gou, Ning Liu, Yuewei Wu, Wenlong Lan, Mengmeng Wang, Wei Shi\* and Peng Cheng\*



10378

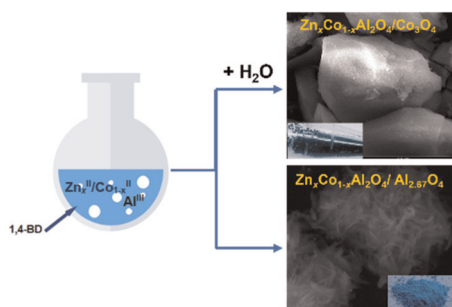
### Highly efficient CsPbBr<sub>3</sub>@glass@polyurethane composite film as flexible liquid crystal display backlight

Guoxing Zhang, Dongliang Jiang, Xinghua Zhu, Yuemei Lan, Dong Wang, Xuejie Zhang, Bo Wang, Yan Gao, Qingguang Zeng and Yan Chen\*



## PAPERS

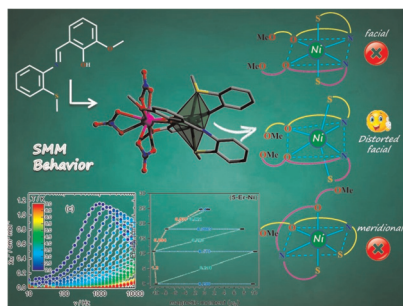
10386



### Deciphering the role of water and a zinc-doping process in a polyol-based approach for obtaining Zn/Co/Al-based spinels: toward “green” mesoporous inorganic pigments

Maria-Gabriela Alexandru, Adelina-Carmen Ianculescu,\* Oana Carp, Daniela C. Culita, Silviu Preda, Cristian D. Ene, Bogdan Stefan Vasile, Vasile-Adrian Surdu, Adrian-Ionut Nicoara, Florentina Neatu, Ioana Pintilie and Diana Visinescu\*

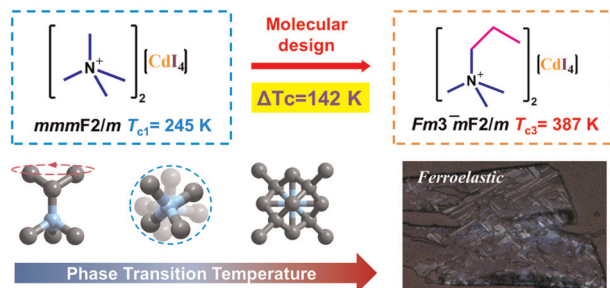
10402



### Lanthanoid coordination prompts unusually distorted pseudo-octahedral Ni<sup>II</sup> coordination in heterodinuclear Ni–Ln complexes: synthesis, structure and understanding of magnetic behaviour through experiment and computation

Biswarup Dutta, Thierry Guizouarn, Fabrice Pointillart, Kamil Kotrle, Radovan Herchel and Debashis Ray\*

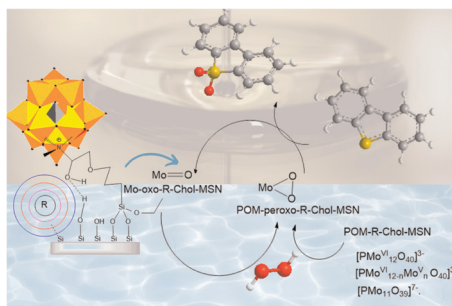
10415



### Methyl regulation triggers high-temperature ferroelastic phase transition

Si-Yue Zhang, Zhi-Cheng Zhang, Tie Zhang, Hao-Fei Ni, Zhi-Xu Zhang, Da-Wei Fu\* and Hai-Feng Lu\*

10423



### Enhanced adsorption–catalysis combination for the removal of sulphur from fuels using polyoxometalates supported on amphipathic hybrid mesoporous silica nanoparticles

Josefa Ortiz-Bustos, Helena Pérez del Pulgar, Yolanda Pérez\* and Isabel del Hierro\*

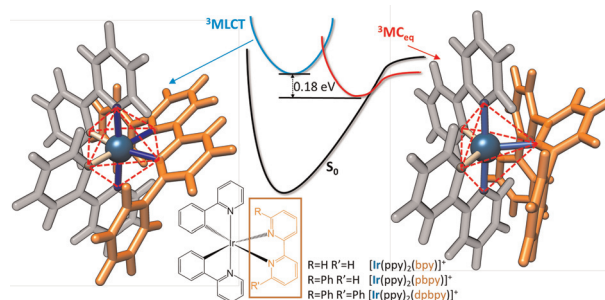


## PAPERS

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### On the importance of equatorial metal-centered excited states in the photophysics of cyclometallated Ir(III) complexes

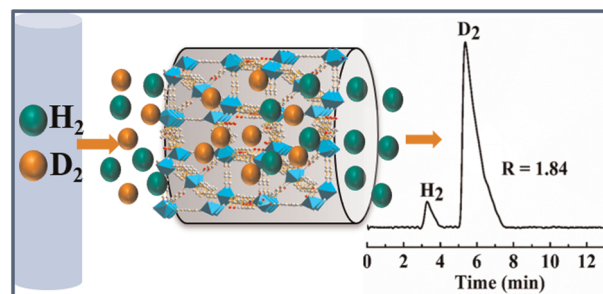
Iván Soriano-Díaz, Enrique Orti\* and Angelo Giussani\*



10448

### Rapid diffusion of H<sub>2</sub> and strong adsorption of D<sub>2</sub> in Ni-4PyC realized the efficient separation of H<sub>2</sub>/D<sub>2</sub> by gas chromatography

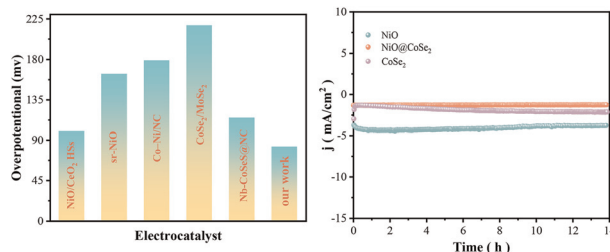
Lingyun Kong, Enming Ping, Chunyan Ding, Lijuan Zhang,\* Yunshan Zhou\* and Nan Chen



10457

### NiO@CoSe<sub>2</sub> nanostructures for high-performance asymmetric supercapacitors and efficient electrocatalysts

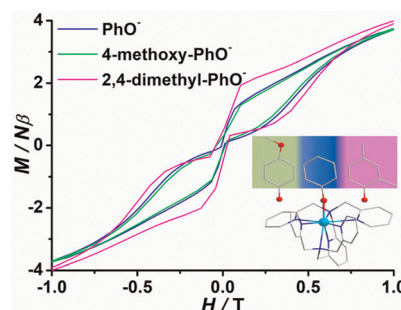
Xingyu Liu, Mengdi Wang, Ahmad Umar and Xiang Wu\*



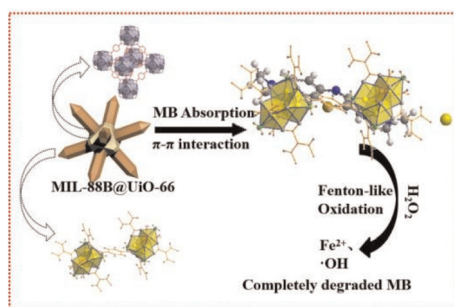
10465

### Boosting the mono-axial crystal field in stable high-coordinate Dy(III) single-ion magnets by substitution of the phenoxy axial ligand

Ben Zhang, Yang Zhou, Chang Dong, Yi Xiang, Yanbo Shi, Chennan Zhang, Aihua Yuan, Shaojun Zheng,\* Zhao-Yang Li,\* Yi-Quan Zhang,\* Yong Yang and Lei Chen\*



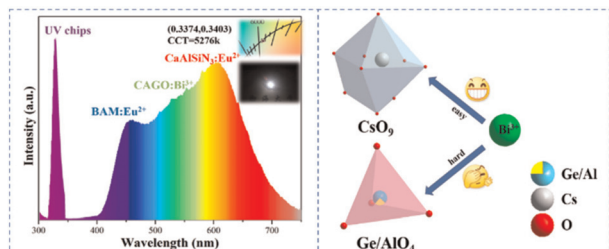
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### Co-adsorption and Fenton-like oxidation in the efficient removal of methylene blue by MIL-88B@UiO-66 nanoflowers

Pingping Teng, Ying Liu, Zhongqiao Sun, Hao Meng, Yide Han and Xia Zhang\*

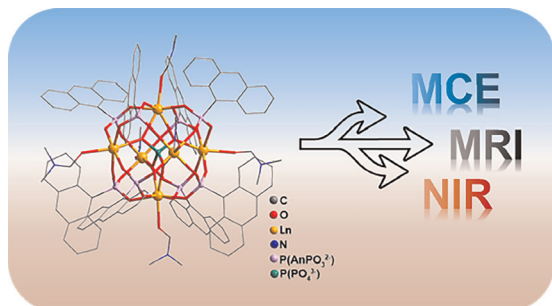
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### A metal-to-metal charge transfer induced green-yellow phosphor CsAlGe<sub>2</sub>O<sub>6</sub>:Bi<sup>3+</sup> for full-spectrum LED devices

Shuo Yang, Chuqi Wang, Xiaoxi Ma, Chuang Wang,\* Yujuan Dong, Enlai Dong, Ge Zhu\* and Shuangyu Xin\*

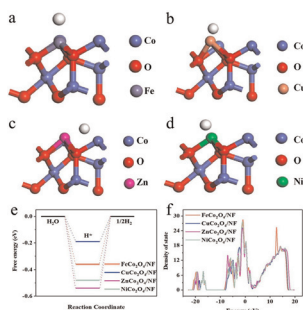
10489



### Octahedral lanthanide clusters containing a central PO<sub>4</sub><sup>3-</sup> anion: structural, luminescent, magnetic and relaxometric properties

Yi-Ping Qu, Xin-Da Huang, Kui Xu, Song-Song Bao and Li-Min Zheng\*

10499



### Controlled synthesis of ACo<sub>2</sub>O<sub>4</sub> (A = Fe, Cu, Zn, Ni) as an environmentally friendly electrocatalyst for urea electrolysis

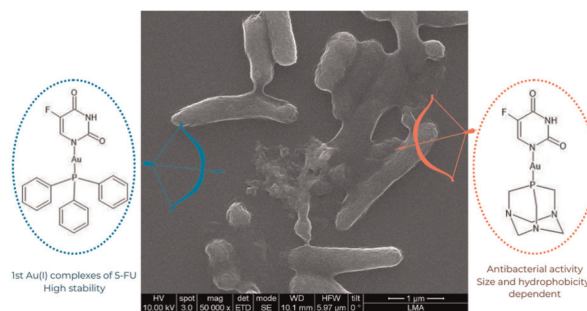
Ping Li, Yanhong Wang, Xiaoqiang Du\* and Xiaoshuang Zhang



10507

### Antibacterial properties of phosphine gold(I) complexes with 5-fluorouracil

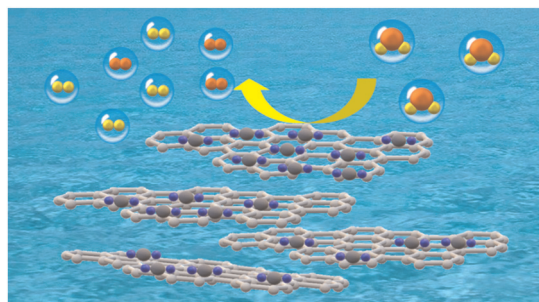
Ricardo Ferrando, Scott G. Mitchell,  
Elena Atrián-Blasco\* and Elena Cerrada\*



10515

### RuO<sub>2</sub> nanoparticles anchored on g-C<sub>3</sub>N<sub>4</sub> as an efficient bifunctional electrocatalyst for water splitting in acidic media

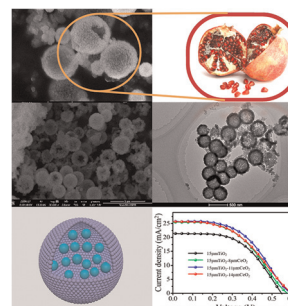
Yun Wu, Rui Yao, Qiang Zhao, Jinping Li and  
Guang Liu\*



10522

### Preparation of a CeO<sub>2</sub> ball-core structure and its application in quantum dot sensitized solar cells

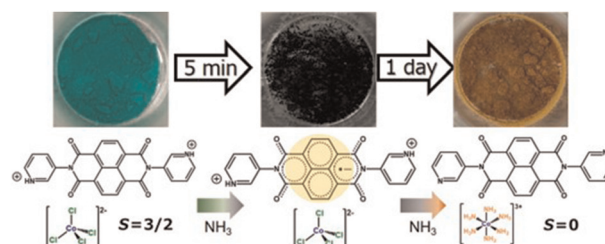
Shusen Yang, Jie Sun, Chenxuan Dai, Zixin Wang,  
Zeyuan Ma, Wenming Zhang\* and Ling Li\*



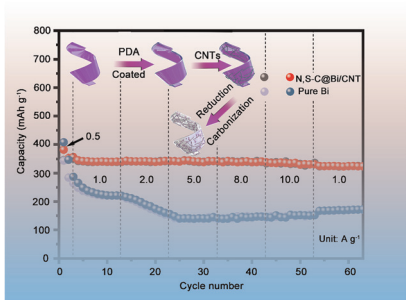
10531

### Thermosalient effect of a naphthalene diimide and tetrachlorocobaltate hybrid and changes of color and magnetic properties by ammonia vapor

Shunya Masuda, Sotaro Kusumoto,\* Masaya Okamura,  
Shiro Hikichi, Ryuya Tokunaga, Shinya Hayami,  
Yang Kim and Yoshihiro Koide\*



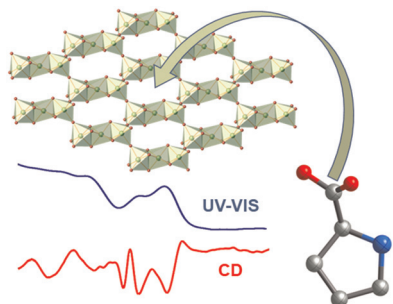
10537



### Bi nanoparticles confined in N,S co-doped carbon nanoribbons with excellent rate performance for sodium-ion batteries

Guirong Huang, Qiushi Huang, Zhe Cui, Jinqi Zhu, Mengluan Gao, Wenqing Wang, Fuming Weng, Qian Liu\* and Rujia Zou\*

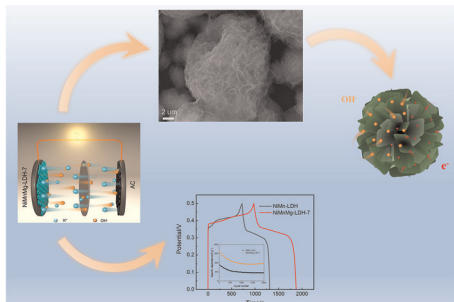
10545



### Structural diversity in proline-based lead bromide chiral perovskites

Valerii Y. Sirenko, Olesia I. Kucheriv, Igor O. Fritsky, Elzbieta Gumienna-Kontecka, Ioan-Andrei Dascălu, Sergiu Shova and Il'ya A. Gural'skiy\*

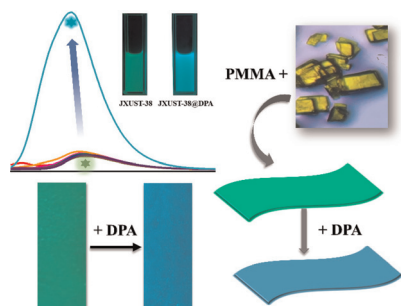
10557



### Mg doping of NiMn-LDH with a three-dimensional porous morphology for an efficient supercapacitor

Biao Zhang, Ying Yang, Jingliang Cai, Xiaolong Hou, Caini Yi, Xuan Liao, Yuping Liu, Changguo Chen, Danmei Yu\* and Xiaoyuan Zhou\*

10567



### A highly stable chain-based Eu<sup>III</sup> metal-organic framework as a turn-on and blue-shift luminescent sensor for dipicolinic acid

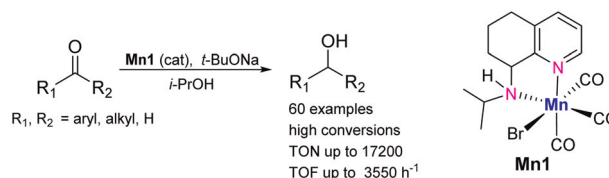
Li Wang, Yu-Lian Zhu, Teng-Fei Zheng, Zi-Hao Zhu,\* Yan Peng, Yong-Quan Wu, Jing-Lin Chen, Sui-Jun Liu\* and He-Rui Wen



10574

### Robust and efficient transfer hydrogenation of carbonyl compounds catalyzed by *NN*-Mn(I) complexes

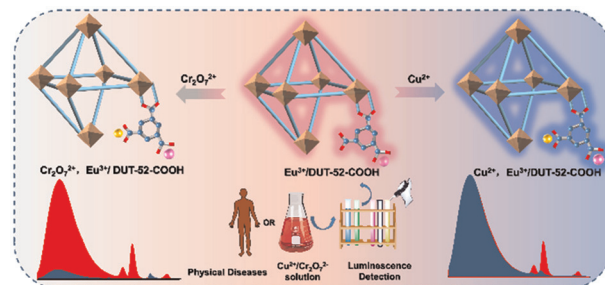
Zheng Wang,\* Ning Ma, Xiaochi Lu, Ming Liu, Tian Liu, Qingbin Liu,\* Gregory A. Solan\* and Wen-Hua Sun\*



10584

### A new dual-ligand DUT-52-type metal–organic framework for ratiometric luminescence detection of aqueous-phase Cu<sup>2+</sup> and Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>

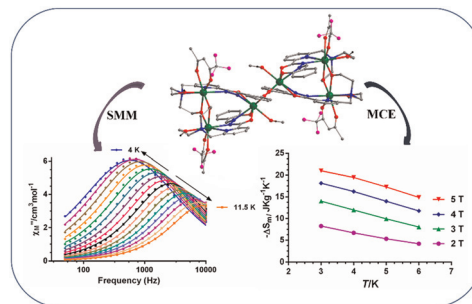
Xue Wen, Wenjun Zhang,\* Cong Ding, Zhongfa Li and Chengyue Xin



10594

### Synthesis, structures and magnetic studies of hexanuclear lanthanide complexes: SMM behavior of the Dy<sup>III</sup> analogue and MCE properties of the Gd<sup>III</sup> analogue

Pawan Kumar, Pankaj Kalita, María A. Palacios, Vierandra Kumar, Joydev Acharya, Enrique Colacio\* and Vadapalli Chandrasekhar\*



10609

### Pd-NHC catalysed regioselective activation of B(3,6)-H of *o*-carborane – a synergy between experiment and theory

Jia-Wei Yu, Cai-Yan Zhang, Gregory A. Chass, Jing-Xuan Zhang, Wei-Hua Mu\* and Ke Cao\*

