

# Dalton Transactions

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## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 52(43) 15611–16068 (2023)



**Cover**  
 See Christopher J. Ziegler  
 and Victor N. Nemykin,  
 pp. 15647–15655.

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**Inside cover**  
 See Guillermo Mínguez  
 Espallargas *et al.*,  
 pp. 15682–15687.

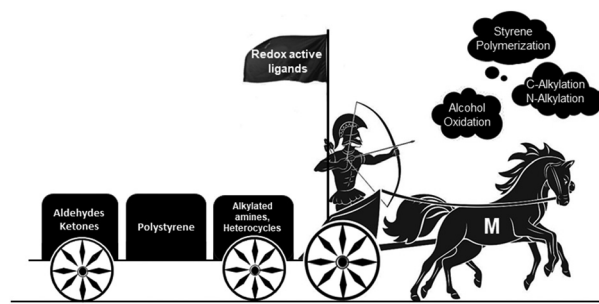
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 15682.

## PERSPECTIVE

15627

### Electron transfer catalysis mediated by 3d complexes of redox non-innocent ligands possessing an azo function: a perspective

Alok Apan Swatiputra, Debaarjun Mukherjee,  
 Soumitra Dinda, Subhadip Roy, Kausikisankar Pramanik\*  
 and Sanjib Ganguly\*

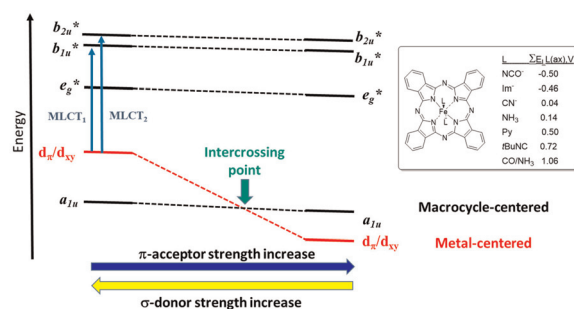


## FRONTIER

15647

### The fascinating story of axial ligand dependent spectroscopy and redox-properties in iron(II) phthalocyanines

Christopher J. Ziegler\* and Victor N. Nemykin\*



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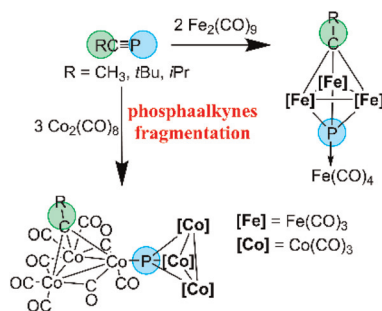


## COMMUNICATIONS

15656

## Unusual cleavage of phosphalkynes triple bond in the coordination sphere of transition metals

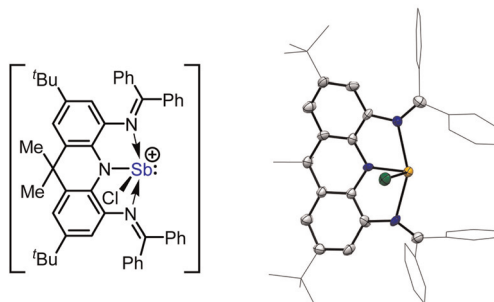
Mehdi Elsayed Moussa, Eva-Maria Rummel, Maria Eckhardt, Christoph Riesinger and Manfred Scheer\*



15660

## Utilizing bis(imino)dihydroacridanide pincer ligands in p-block chemistry: synthesis and catalysis of an antimony monocation salt

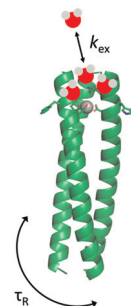
Xiaofang Lan, Xin Zhang, Yanbo Mei, Chaopeng Hu and Liu Leo Liu\*



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## Understanding the mechanism by which Gd(III) coiled coils achieve magnetic resonance relaxivity – a study into the water coordination chemistry

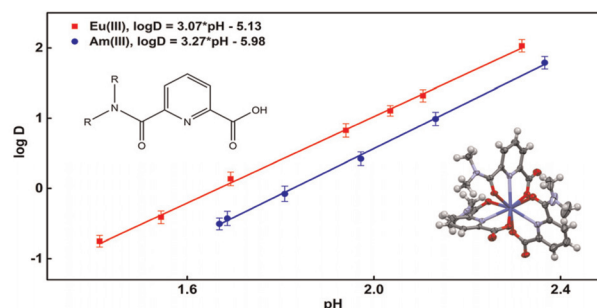
S. L. Newton, A. Franke, A. Zahl, G. Molinaro, A. Kenwright, D. J. Smith, I. Ivanovic-Burmazovic,\* M. M. Britton\* and A. F. A. Peacock\*



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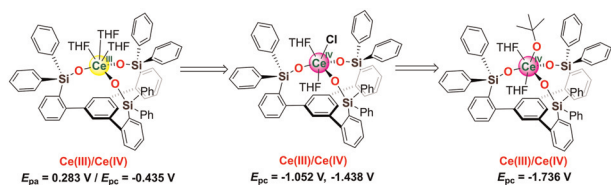
Complexation of Am(III) and Eu(III) with DRAPA (*N,N*-dialkyl-6-amide-pyridine-2-carboxylic acid)

Chao Xu, Tingting Liu, Qian Liu, Suliang Yang, Dingming Li and Guoxin Tian\*



## COMMUNICATIONS

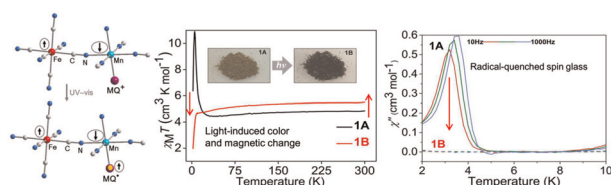
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### Tripodal tris(siloxide) ligand supported trivalent rare-earth metal complexes and redox reactivity

Hui Guo, Dongjing Hong and Peng Cui\*

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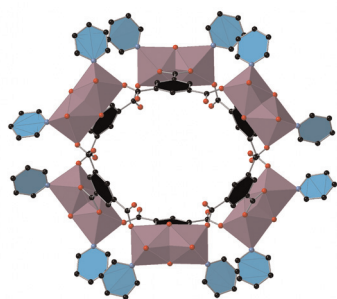


### Photoinduced large magnetic change at room temperature and radical-quenched spin glass in a cyanide-bridged $\text{Mn}^{\text{II}}-\text{Fe}^{\text{III}}$ compound

Li-Zhen Cai, Xiao-Qing Yu, Ming-Sheng Wang\* and Guo-Cong Guo\*

## PAPERS

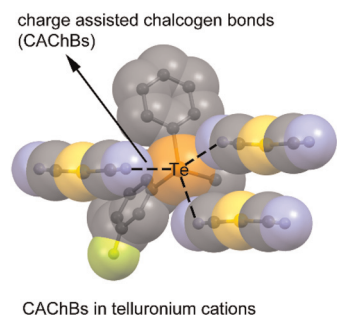
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### Imparting structural robustness of metal-organic cages based on oxo-dimolybdenum clusters

Solène Delaporte, Isabel Abánades Lázaro, Javier López-Cabrelles, Eleni C. Mazarakioti, Sarah Chebourou, Iñigo J. Vitorica-Yrezabal, Mónica Giménez-Marqués and Guillermo Mínguez Espallargas\*

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### Synthesis, X-ray characterization and DFT analysis of dicyanidoaurate telluronium salts: on the importance of charge assisted chalcogen bonds

Simone Ghinato, Alessia Giordana,\* Eliano Diana, Rosa M. Gomila, Emanuele Priola\* and Antonio Frontera\*

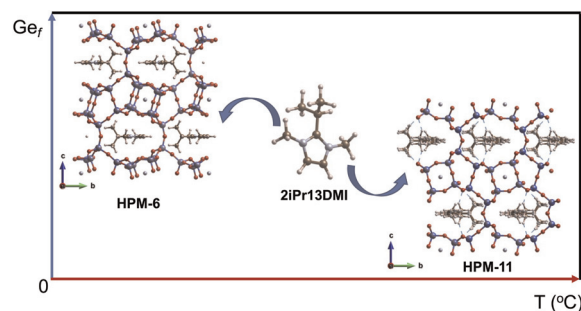


## PAPERS

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## 2-Isopropyl-1,3-dimethylimidazolium as a versatile structure-directing agent in the synthesis of zeolites

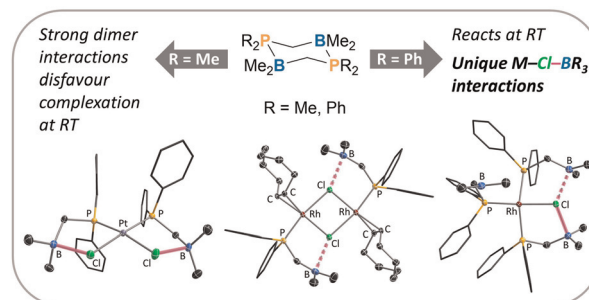
Huajian Yu, Alex Rojas, Zihao Rei Gao, Luis Gómez-Hortigüela, Luis A. Villaescusa, Jian Li, Jean-Louis Paillaud and Miguel A. Camblor\*



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## A comparison of the coordination behaviour of $R_2PCH_2BMe_2$ ( $R = Me$ vs. $Ph$ ) ambiphilic ligands with late transition metals

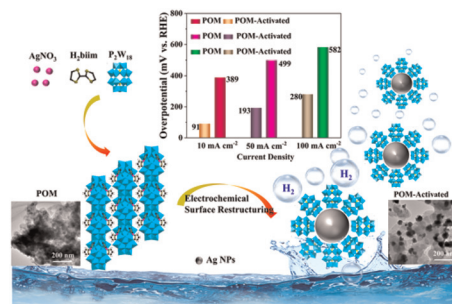
Katia M. Paskaruk, David J. H. Emslie\* and James F. Britten



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## Development of polyoxometalate-based $Ag-H_2biim$ inorganic–organic hybrid compounds functionalized for the acid electrocatalytic hydrogen evolution reaction

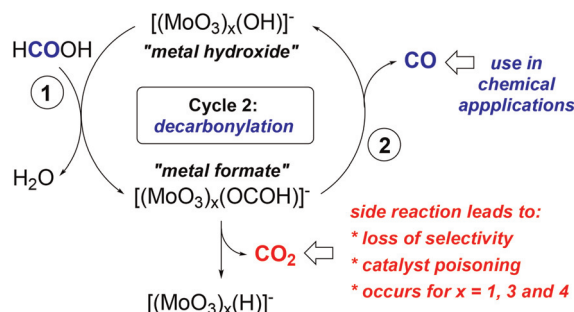
Sifan Li, Jiansheng Li,\* Haotian Zhu, Liyuan Zhang, Xiaojing Sang, Zaiming Zhu, Wansheng You\* and Fuxiang Zhang\*



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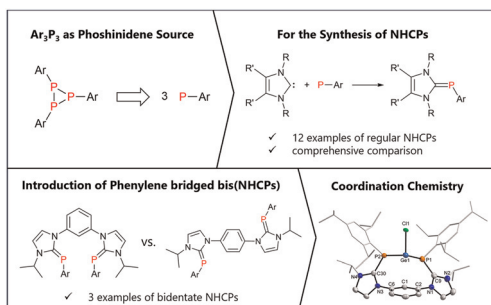
## Liberation of carbon monoxide from formic acid mediated by molybdenum oxyanions

Howard Z. Ma, Allan J. Canty and Richard A. J. O'Hair\*



## PAPERS

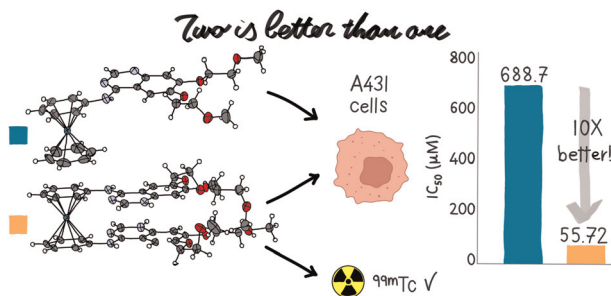
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### Triphosphiranes as phosphinidene-transfer agents – synthesis of regular and chelating NHC phosphinidene adducts

Jan-Erik Siewert, André Schumann, Tim Wellnitz, Fabian Dankert and Christian Hering-Junghans\*

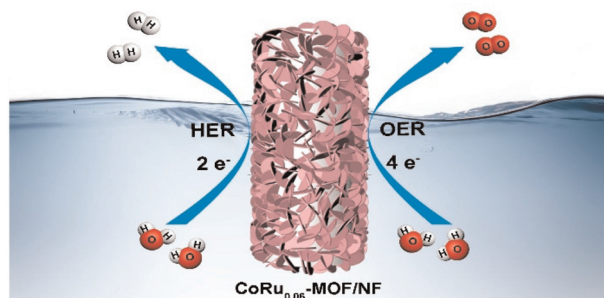
15757



### *In vivo* and *in vitro* studies of [M(η<sup>6</sup>-pseudoerlotinib)<sub>2</sub>]<sup>+</sup> sandwich complexes (M = Re, <sup>99m</sup>Tc)

Federica Battistin,\* Célia Fernandes, Paula. D. Raposo, Olivier Blacque, António Paulo\* and Roger Alberto

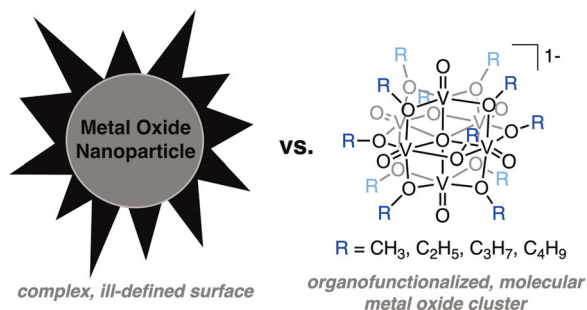
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### Ultralow ruthenium modification of cobalt metal–organic frameworks for enhanced efficient bifunctional water splitting

Yuanyuan Wu, Xuejiao Gu, Wei Jiang, Jihui Lang, Yunchao Ma, Yang Lu, Xiaotian Yang,\* Chunbo Liu\* and Guangbo Che\*

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### Surface ligand length influences kinetics of H-atom uptake in polyoxovanadate-alkoxide clusters

Chari Y. M. Peter, Eric Schreiber, Kathryn R. Proe and Ellen M. Matson\*

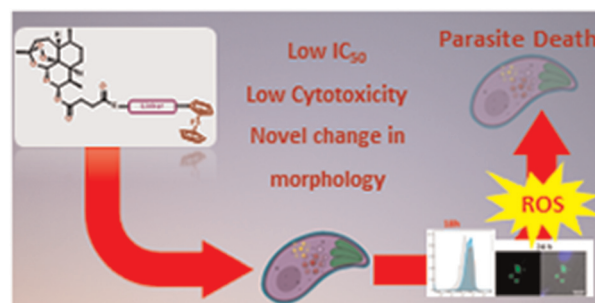


## PAPERS

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## Investigation of new ferrocenyl-artesunate derivatives as antiparasitics

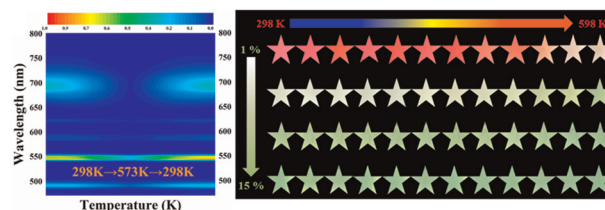
Brandon L. Munnik, Catherine H. Kaschula, Clare R. Harding and Prinessa Chellan\*



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## Designing dual-emission phosphors for temperature warning indication and dual-mode luminescence thermometry

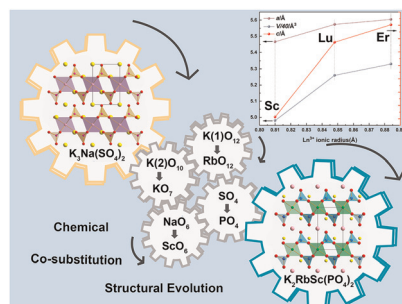
Li Li,\* Xinji Li, Zhaojie Wu, Yongbin Hua, Xianju Zhou, Yongjie Wang, Zhongmin Cao, Sha Jiang, Guotao Xiang and Jae Su Yu\*



15807

Co-substitution design: a new glaserite-type rare-earth phosphate  $K_2RbSc(PO_4)_2$  with high structural tolerance

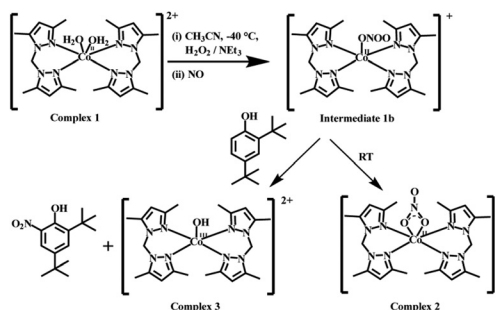
Jingfang Zhou, Pifu Gong, Mingjun Xia and Qian Wu\*



15815

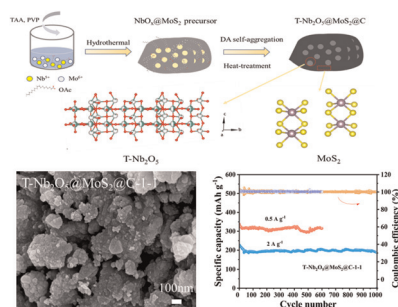
## Reaction of a Co(III)-peroxo complex with nitric oxide: putative formation of a peroxynitrite intermediate

Bapan Samanta, Riya Ghosh, Rakesh Mazumdar, Shankhadeep Saha, Sayani Maity and Biplab Mondal\*



## PAPERS

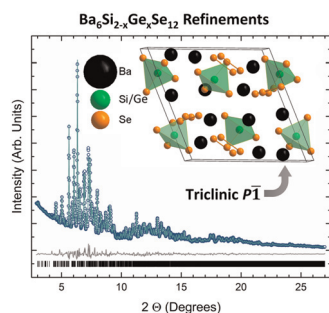
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### Carbon-supported T-Nb<sub>2</sub>O<sub>5</sub> nanospheres and MoS<sub>2</sub> composites with a mosaic structure for insertion–conversion anode materials

Shaohao Li, Caifeng Pan, Zhaohui Zhao, Wei Yang, Hanbo Zou\* and Shengzhou Chen\*

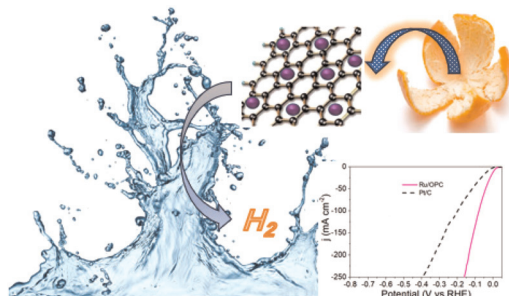
15831



### Crystal structure, phase width, and physical properties of the barium tetrel selenides Ba<sub>6</sub>Si<sub>2-x</sub>Ge<sub>x</sub>Se<sub>12</sub> (x = 0, 0.5, 1, and 1.5) with ultralow thermal conductivity

Luke T. Menezes, Abdeljalil Assoud and Holger Kleinke\*

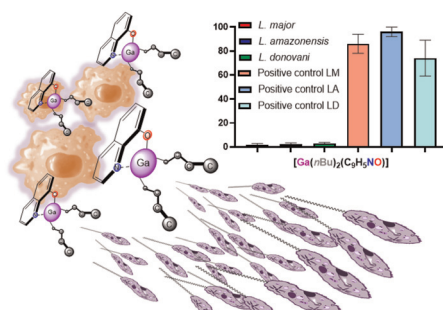
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### Orange-peel derived carbon-loaded low content ruthenium nanoparticles as ultra-high performance alkaline water HER electrocatalysts

Yang Teng, Lu Zhou, Yi-Zhi Chen, Jun-Zhe Gan, Ye Xi and Hai-Lang Jia\*

15848



### Structure–activity effects in the anti-leishmanial activity of di-alkyl gallium quinolin-8-olates

Rebekah N. Duffin and Philip C. Andrews\*

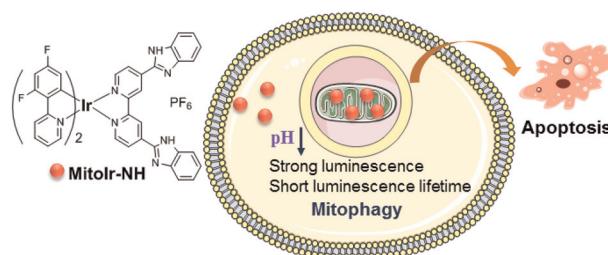


## PAPERS

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# Inducing and monitoring mitochondrial pH changes with an iridium(III) complex via two-photon lifetime imaging

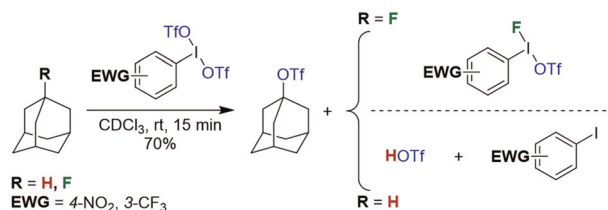
Meng Hu, Xin-Lan Zhou, Tian-Xin Xiao, Liang Hao\* and Yi Li\*



15866

# C–H, Si–H and C–F abstraction with an extremely electron poor I(III) reagent

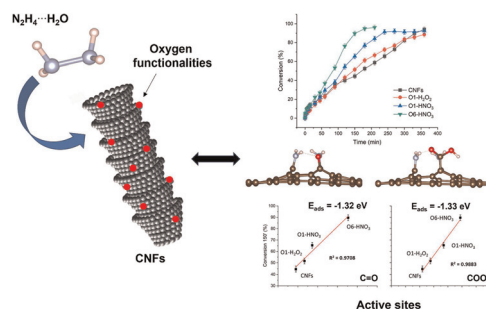
Tania, Marcus Sceney, Jason D. Bennetts, Lachlan Barwise, Keith F. White and Jason L. Dutton\*



15871

# Effects of oxygen functionalities on hydrous hydrazine decomposition over carbonaceous materials

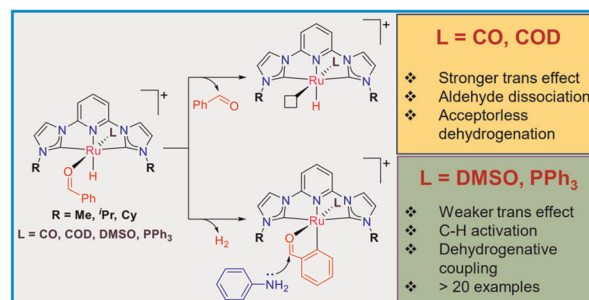
Silvio Bellomi, Ilaria Barlocco, Simone Tumati, Patrizia Fumagalli, Nikolaos Dimitratos, Alberto Roldan\* and Alberto Villa\*



15878

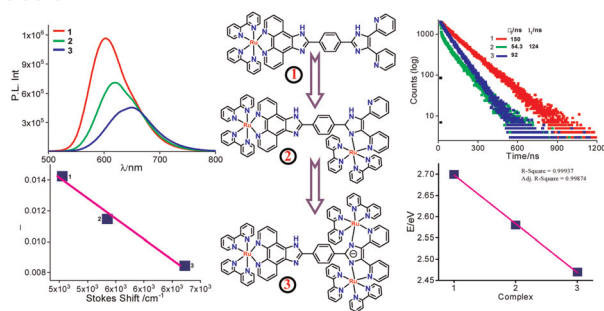
# Role of ancillary ligands in selectivity towards acceptorless dehydrogenation versus dehydrogenative coupling of alcohols and amines catalyzed by cationic ruthenium(II)–CNC pincer complexes

Rahul Kumar Singh, Dibya Yadav, Shilpi Misra and Amrendra K. Singh\*



## PAPERS

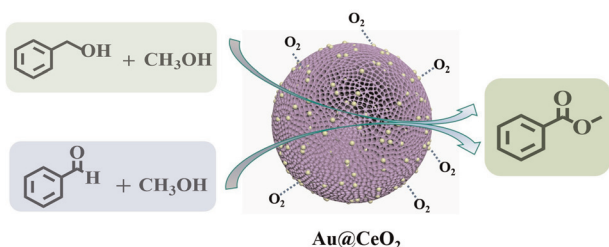
15896



### Modulation of ground and excited state properties of ruthenium complexes through sequential incorporation of metal into a polypyridyl-imidazole bridging ligand

Anik Sahoo, Manoranjan Bar, Raju Biswas, Tuhin Abedin and Sujoy Baitalik\*

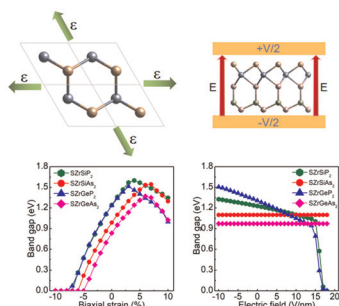
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### A COF template-derived mesoporous CeO<sub>2</sub>-supported Au nanoparticles catalyst for the oxidative esterification of benzaldehydes and benzyl alcohols

Cheng Zhang, Tianhang Huang, Jinhua Liang, Hongzhang Cao, Yanhui Xu,\* Weisheng Liu and Zhengping Dong\*

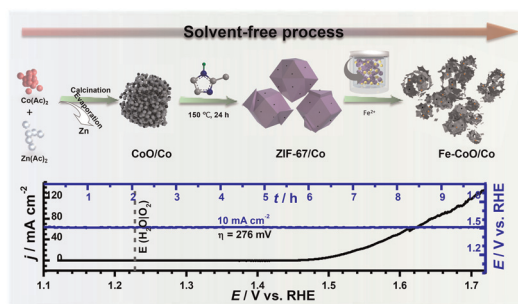
15918



### Strain and electric field induced electronic property modifications in two-dimensional Janus SZrAZ<sub>2</sub> (A = Si, Ge; Z = P, As) monolayers

Zhen Gao, Yao He\* and Kai Xiong\*

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### Constructing an efficient electrocatalyst for water oxidation: an Fe-doped CoO/Co catalyst enabled by *in situ* MOF growth and a solvent-free strategy

Sanmei Liu, Yanping Yang, Minli Zhong, Shengchen Li, Shunli Shi,\* Weimin Xiao, Shuhua Wang and Chao Chen\*

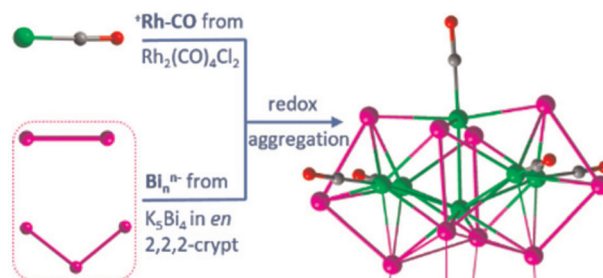


## PAPERS

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### Dimeric polybismuth heteroanion of $[\text{Rh}@\text{Bi}_{10}(\text{RhCO})_5]^{2-}$ constructed using $\text{Bi}_{10}$ -bowl and square pyramidal $\text{Rh}(\text{Rh}-\text{CO})_5$

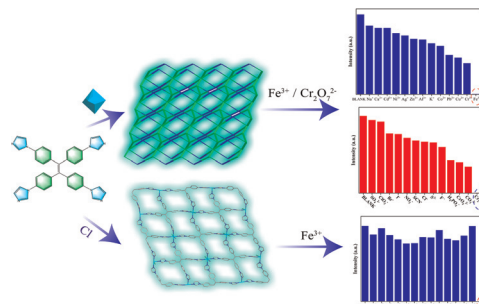
Yipeng Zang, Yueyue Wang, Ruili Sang and Li Xu\*



15940

### Structure and properties of metal–organic frameworks modulated by sulfate ions

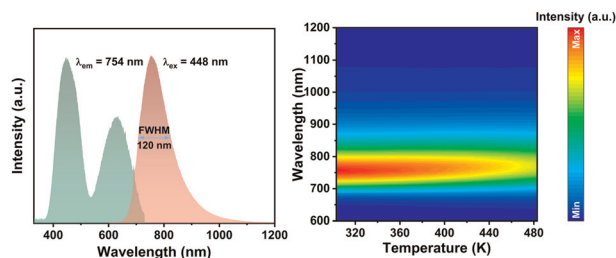
Yuan-Yuan Guo, Rui-Dong Wang, Wei-Ming Wei, Fang Fang, Xu-Hui Zhao, Suo-Shu Zhang, Tian-Ze Shen, Jun Zhang, Qi-Hua Zhao\* and Juan Wang\*



15950

### An efficient and thermally stable $\text{Cr}^{3+}$ -activated $\text{Y}_2\text{GdSc}_2\text{Al}_2\text{GaO}_{12}$ garnet phosphor for NIR spectroscopy applications

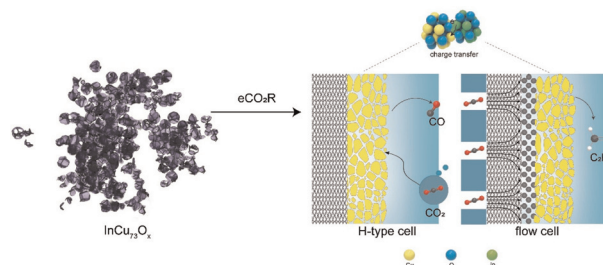
Jihuan Xie, Junhang Tian, Lipeng Jiang, Min Cao and Weidong Zhuang\*



15958

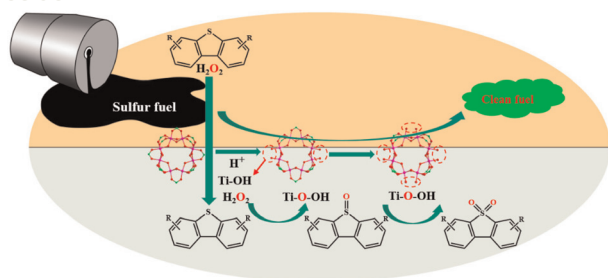
### Controlling the $\text{C}_1/\text{C}_{2+}$ product selectivity of electrochemical $\text{CO}_2$ reduction upon tuning bimetallic $\text{CuIn}$ electrocatalyst composition and operating conditions

Lin Gu and Abhishek Dutta Chowdhury\*



## PAPERS

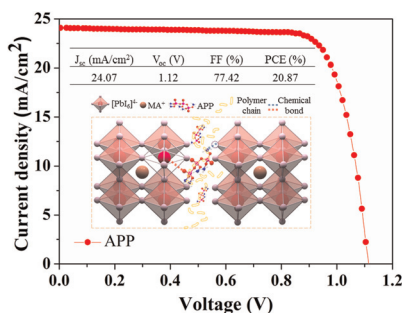
15968



### Insights into the sacrificial structure–activity relationship of a Ti-based metal–organic framework in an oxidative desulfurization reaction

Gan Ye,\* Zhaohan Yang, Lulu Wan, Guangming Shi, Yuying Chang and Qiuli Zhang\*

15974



### Air-processed MAPbI<sub>3</sub> perovskite solar cells achieve 20.87% efficiency and excellent bending resistance enabled via a polymer dual-passivation strategy

Pengyun Zhang, Jie Xiong,\* Wei-Hsiang Chen, Pingfan Du and Lixin Song\*

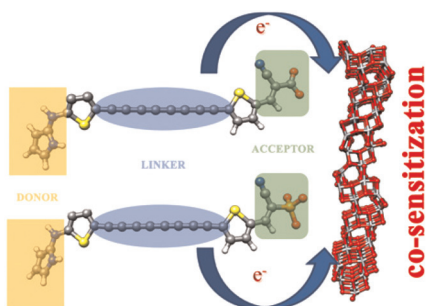
15986



### Copper complexes for the chemoselective N-arylation of arylamines and sulfanilamides via Chan–Evans–Lam cross-coupling

Selvam Raju,\* Mohsen Teimouri, Bhupendra Adhikari, Bruno Donnadieu, Sean L. Stokes\* and Joseph P. Emerson\*

15995



### Predicting the dye-sensitized solar cell performance of novel linear carbon chain-based dyes: insights from DFT simulations

Giuseppe Consiglio, Adam Gorczyński, Salvatore Petralia and Giuseppe Forte\*

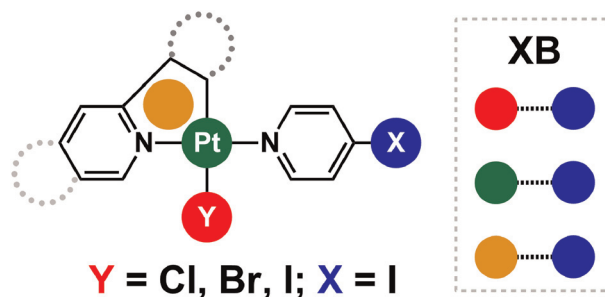


## PAPERS

16005

**X/Y platinum(II) complexes: some features of supramolecular assembly *via* halogen bonding**

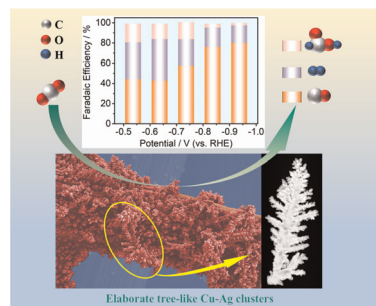
Anastasia Yu. Gitlina, Stanislav Petrovskii, Maksim Luginin, Alexey Melnikov, Elena Rychagova, Sergey Ketkov\* and Elena Grachova\*



16018

**Elaborate tree-like Cu–Ag clusters from green electrodeposition for efficiently electrocatalyzing CO<sub>2</sub> conversion into syngas**

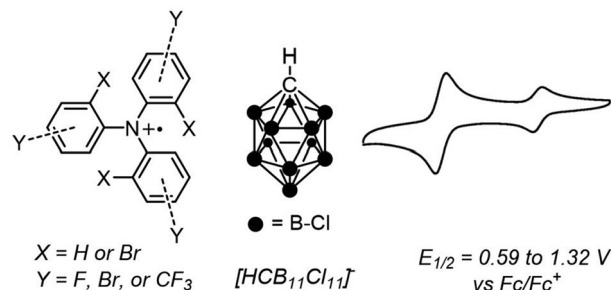
Cuiping Xu, Yuande Shi, Xiaohuan Zou, Hongyang Xu, Lingxing Zeng,\* Zhongshui Li\* and Qiufeng Huang



16027

**Synthesis of fluorinated aminium cations coupled with carborane anions for use as strong one-electron oxidants**

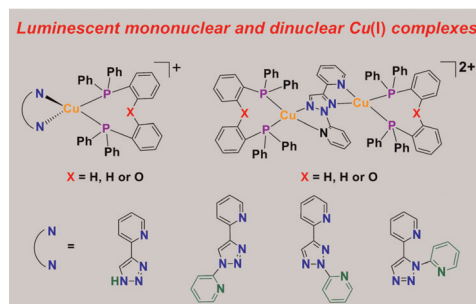
Jillian J. Davidson, S. Olivia Gunther, Derek W. Leong and Oleg V. Ozerov\*



16032

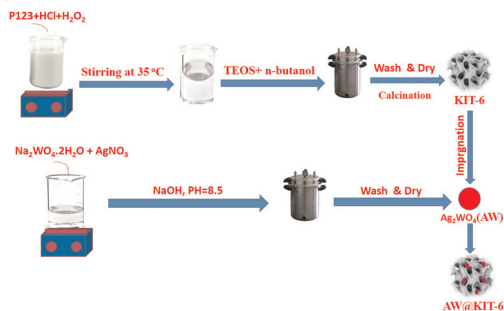
**Synthesis, structure and photoluminescence of Cu(I) complexes containing new functionalized 1,2,3-triazole ligands**

Li-Xin Wang, Shun-Cheung Cheng, Yingying Liu, Chi-Fai Leung, Ji-Yan Liu,\* Chi-Chiu Ko,\* Tai-Chu Lau\* and Jing Xiang\*



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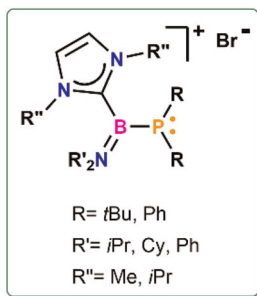
16043



### Synthesis of novel solid scale inhibitors based on silver tungstate loaded KIT-6 for scale removal from produced water: static and modeling evaluation

Heba M. Salem,\* Mahmoud F. Mubarak, Asmaa A. Abdelrahman and R. Hosny\*

16061



### Phosphinoborenyl cations aka cationic phosphinoboranes

- pyramidal phosphanyl group directly bonded with borenium B atom
- B-P bond susceptible to heterolytic cleavage
- donors of phosphido anion

### Phosphinoborenyl cations stabilized by *N*-heterocyclic carbenes: synthesis, structure, and reactivity

Kinga Kaniewska-Laskowska,\* Anna Ordyszewska, Tomasz Wojnowski, Hanna Halenka, Marcin Czapla, Jarosław Chojnacki and Rafał Grubba\*

