

# Dalton Transactions

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## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 53(43) 17397–17730 (2024)



### Cover

See R. Kimmich and A. Schnepf, pp. 17429–17436.

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### Inside cover

See Chiara Maccato *et al.*, pp. 17452–17464.

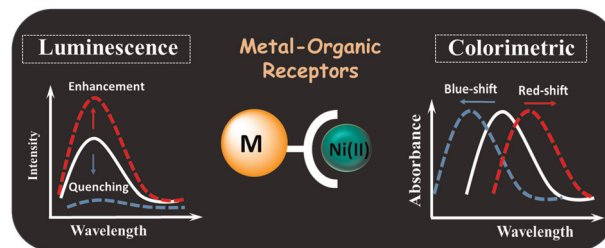
Image reproduced by permission of Chiara Maccato from *Dalton Trans.*, 2024, **53**, 17452.

## PERSPECTIVE

17409

### Optical detection strategies for Ni(II) ion using metal–organic chemosensors: from molecular design to environmental applications

Sudhanshu Naithani, Ritesh Dubey,\* Tapas Goswami,\* Franck Thetiot\* and Sushil Kumar\*

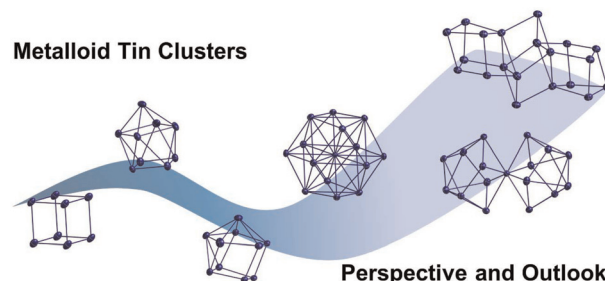


## FRONTIER

17429

### Overview and perspectives on metalloid tin cluster chemistry

R. Kimmich and A. Schnepf\*



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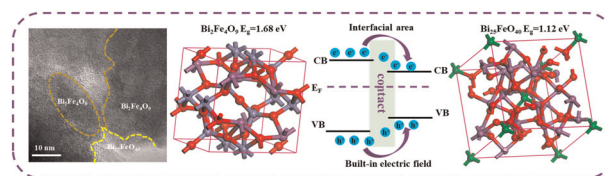
**Fundamental questions  
Elemental answers**

## COMMUNICATIONS

17437

### Construction of a homologous bimetallic oxide $\text{Bi}_2\text{Fe}_4\text{O}_9@\text{Bi}_{25}\text{FeO}_{40}$ heterostructure to boost supercapacitor performance

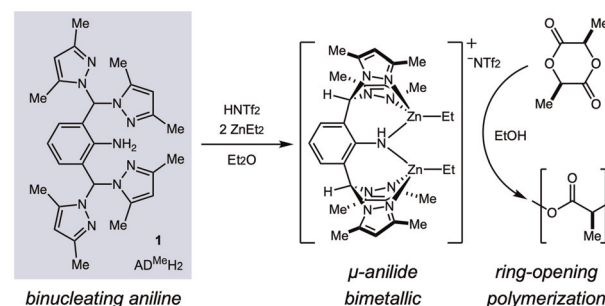
Bingjie Cheng, Xiaoqiang Li, Ruqu Han,\* Jun Xiang\* and Yamei Zhang



17443

### An aniline-bridged *bis*(pyrazolyl)alkane ligand for dizinc-catalysed ring-opening polymerization

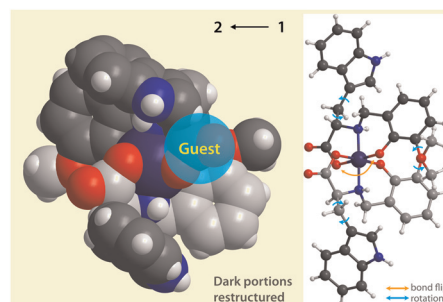
Pratyush K. Naik, Zipeng Gu and Robert J. Comito\*



17448

### A single H-bond triggers the formation of a cleft around $\text{Et}_3\text{NH}^+$ through bond rearrangement and rotations of arms in both $\text{Co(III)}$ and $\text{Fe(III)}$ complexes

Somnath Paik and Manabendra Ray\*

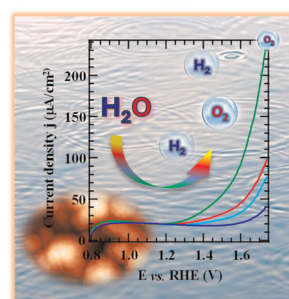


## PAPERS

17452

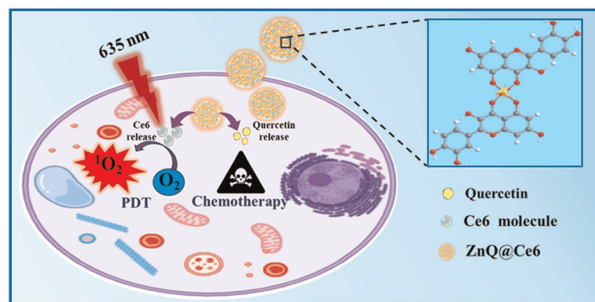
### Plasma-assisted fabrication of ultra-dispersed copper oxides in and on C-rich carbon nitride as functional composites for the oxygen evolution reaction

Mattia Benedet, Angelica Fasan, Davide Barreca, Chiara Maccato,\* Cinzia Sada, Silvia Maria Deambrosio, Valentina Zin, Francesco Montagner, Oleg I. Lebedev, Evgeny Modin, Gian Andrea Rizzi and Alberto Gasparotto



## PAPERS

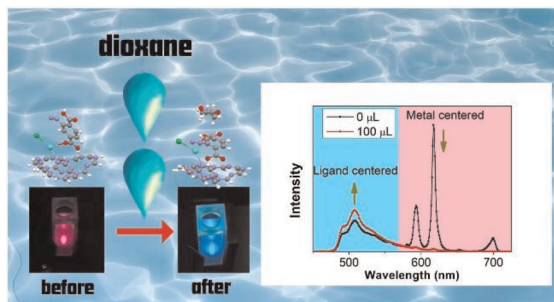
17465



### Rationally designed porous self-assembled nanoparticles for combinational chemo-photodynamic therapy

Kanchan Negi, Ashok Kumar, Gourav Chakraborty, Sudhansubala Sahoo, Sushmita Patra, Niladri Patra, Sujit Kumar Bhutia and Sumanta Kumar Sahu\*

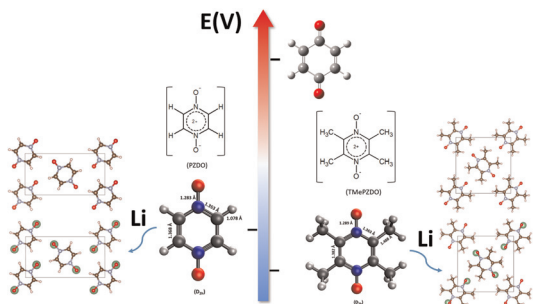
17480



### Ligand-triggered antenna effect and dual emissions in Eu(III) MOF and its application in multi-mode sensing of 1,4-dioxane

Madhulekha Gogoi, Sanmilan Jyoti Kalita, Jyotirmoy Deb, Ankur Gogoi and Lakshi Saikia\*

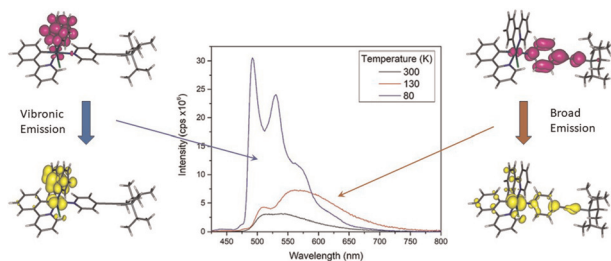
17498



### Investigating the potential of pyrazine dioxide based-compounds as organic electrodes for batteries

F. Lambert, A. L. Hetzel, Y. Danten, A. A. Franco, C. Gatti and C. Frayret\*

17518



### Dual phosphorescent emissions from conformers of iridium complex rotors

Yu-Ting Hsu, Chandni Bhagani, Juan A. Aguilar, Mark A. Fox, Dmitry Yufit, Ross Davidson\* and Andrew Beeby\*

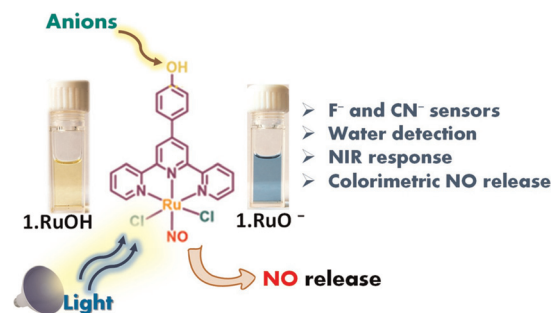


## PAPERS

17525

**A synergetic effect of light and anion: near-infrared colorimetric monitoring of nitric oxide (NO) release from fluoride/cyanide anions and a water responsive ruthenium nitrosyl complex**

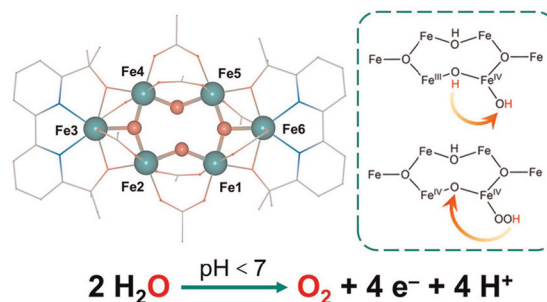
Nancy Sharma, Nitin, Srushti Gadiyaram, Amrita Ghosh and D. Amilan Jose\*



17536

**Mechanistic insights into multimetal synergistic and electronic effects in a hexanuclear iron catalyst with a [Fe<sub>3</sub>(μ<sub>3</sub>-O)(μ<sub>2</sub>-OH)]<sub>2</sub> core for enhanced water oxidation**

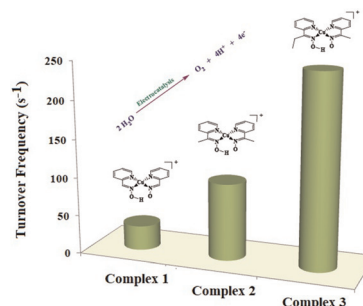
Zhi-Kai Shen, Kang Li, Zi-Jian Li, Yong-Jun Yuan, Jie Guan,\* Zhigang Zou and Zhen-Tao Yu\*



17547

**Effect of ligand substituents on the reactivity pathways of copper(II) complexes towards electrocatalytic water oxidation**

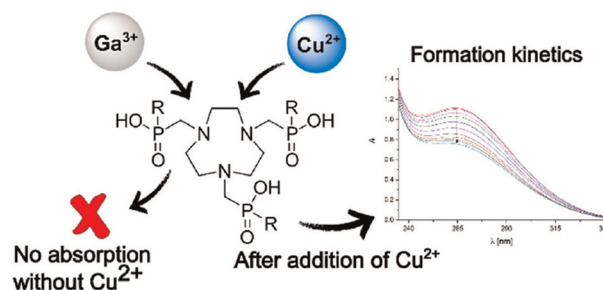
Hemrupa Kuilya, Pranjal Das, Swati Basak, Debajit Sarma, Pradyumna Mazumdar, Diganta Choudhury\* and Apurba Kalita\*



17554

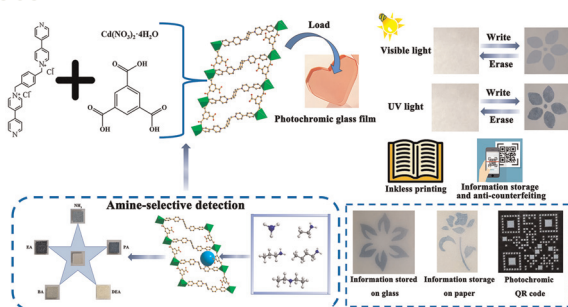
**A UV-Vis method for investigation of gallium(III) complexation kinetics with NOTA and TRAP chelators: advantages, limitations and comparison with radiolabelling**

Viktor Lebruška, Tereza Dobrovolná, Tereza Gemperle, Vojtěch Kubiček,\* Susanne Kossatz and Petr Hermann



## PAPERS

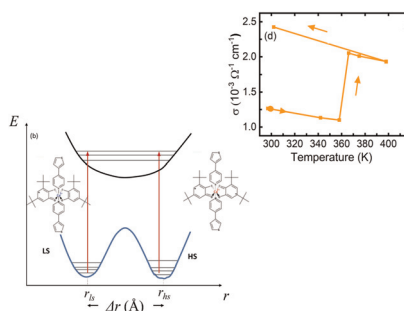
17565



### A novel viologen-based hybrid crystalline material for photochromic glass films, information storage and anti-counterfeiting

Yang-Tao Yu, Shu-Hao Li, Zhuo-Yu Li, Jian-Ge Zeng, Chun-Jie Liu and Li Li\*

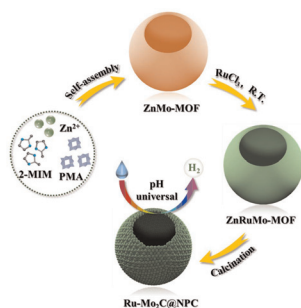
17571



### Conductance fluctuations in cobalt valence tautomer molecular thin films

Jared P. Phillips, Saeed Yazdani, Joseph Soruco, Jackson Oles, Thilini K. Ekanyaka, Esha Mishra, Ping Wang, M. Zaid Zaz, Jing Liu, Alpha T. N'Diaye, Michael Shatruk, Peter A. Dowben\* and Ruihua Cheng\*

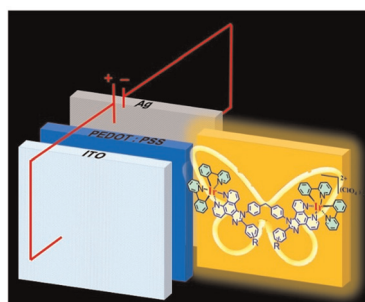
17581



### Hetero-structured Ru–Mo<sub>2</sub>C nanoparticles loaded on N,P co-doped carbon for a pH universal hydrogen evolution reaction

Yanqiang Li, Zhuo Zhang, Yingying Yao, Zi'an Wang, Zhongzheng Yang, Yuping Tong\* and Siru Chen\*

17588



### Binuclear cyclometalated Ir(III) complexes with bis-bidentate butterfly-shaped ligands: synthesis, characterization, and application in efficient yellow–orange light-emitting electrochemical cells

Milad Mazaheri, Babak Nemati Bideh\* and Ahmad Sousaraei

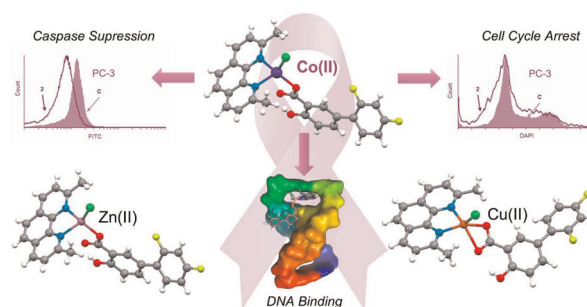


## PAPERS

17595

# Novel Zn(II), Co(II) and Cu(II) diflunisalato complexes with neocuproine and their exceptional antiproliferative activity against cancer cell lines

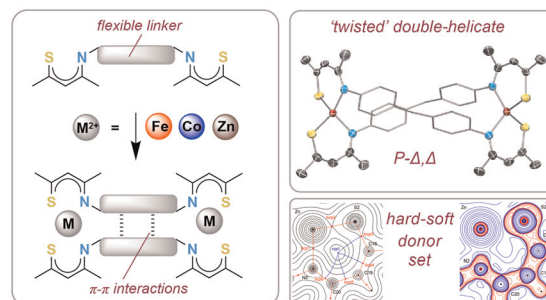
Romana Smolková,\* Lukáš Smolko, Erika Samoľová, Ibrahim Morgan, Robert Rennert and Goran N. Kaluderović



17608

# Helical dinuclear 3d metal complexes with bis(bidentate) [S,N] ligands: synthesis, structural and computational studies

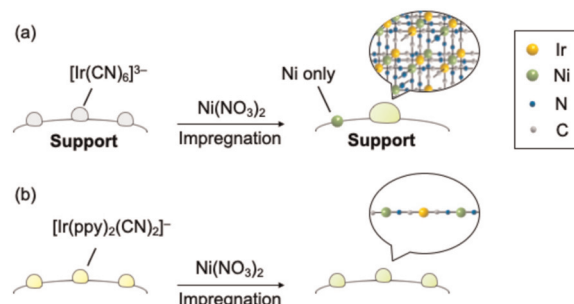
Jamie Allen, Jörg Saßmannshausen, Kuldip Singh and Alexander F. R. Kilpatrick\*



17620

# Utilisation of *in situ* formed cyano-bridged coordination polymers as precursors of supported Ir–Ni alloy nanoparticles with precisely controlled compositions and sizes

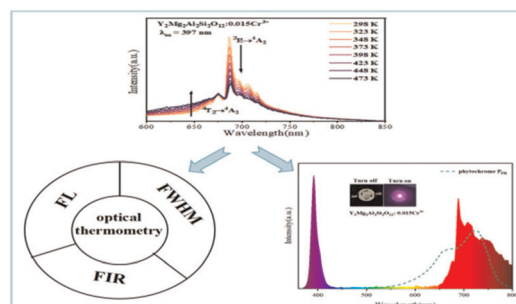
Yusuke Yamada,\* Miho Nishida, Tatsuya Nakabayashi, Takashi Nakazono, Hanghao Lin, Pengru Chen and Masazumi Tamura\*



17629

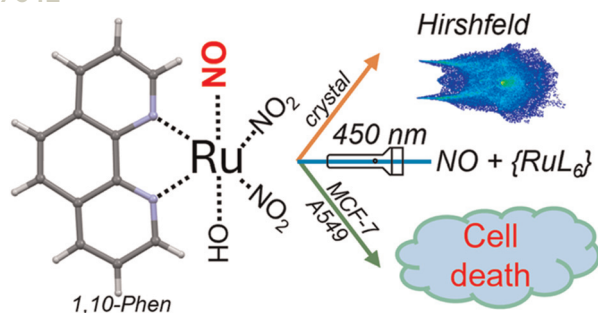
# Thermally stable Cr<sup>3+</sup>-activated silicate phosphors for plant-growth LEDs and three-mode optical thermometry

Rongbo Ma, Tingting Zhang, Bin Cao, Xinyong Gong, Chaoyong Deng and Weichao Huang\*



## PAPERS

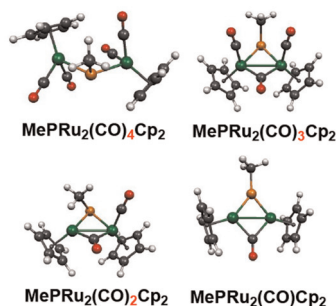
17642



**Photoinduced cytotoxic activity of a rare ruthenium nitrosyl phenanthroline complex showing NO generation in human cells**

Ivan A. Yakovlev,\* Julia A. Golubeva, Lyubov S. Klyushova, Gennadiy A. Kostin and Artem A. Mikhailov\*

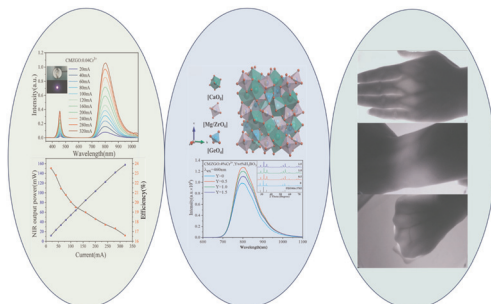
17654



**Binuclear methylphosphinidene complexes of cyclopentadienylruthenium carbonyls: effects of the higher ligand field strength of ruthenium derivatives relative to iron derivatives**

Oleg Rudenco, Alexandru Lupan,\* Radu Silaghi-Dumitrescu and R. Bruce King\*

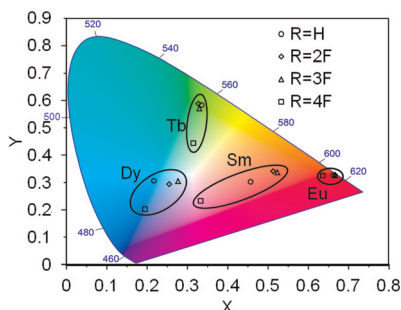
17664



**Broadband Ca<sub>3</sub>MgZrGe<sub>3</sub>O<sub>12</sub>:Cr<sup>3+</sup> garnet phosphor for high-performance NIR pc-LED application**

Minnan Jiang, Xianju Zhou,\* Zhongxiang Shao, Yan Deng, Li Li, Yongjie Wang,\* Zhiyu Yang and Xiantong Tang

17673



**Bipyridyldicarboxamides and f-metals: the influence of electron effects on the structure, stability, separation, and photophysical properties of their complexes**

Nataliya E. Borisova,\* Anastasia V. Kharcheva, Tsagana B. Sumyanova, Victoria Gontcharenko, Pert I. Matveev, Leonid Starostin, Alexander Trigub, Alexey V. Ivanov and Svetlana V. Patsaeva

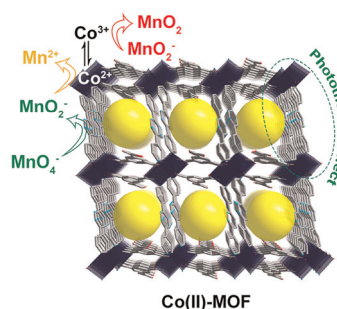


## PAPERS

17687

### Photo–thermo synergistic permanganate decomposition over a hydrolytically stable Co(II)-MOF

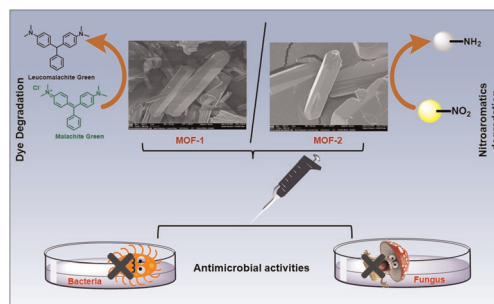
Quan-Quan Li, Huan-Xi Wang, Yi Deng, Si-Yu Chen, Yang Chen, Shi-Jie Cao, Qing-Wen Ye, Jing Bai\* and Hua Liu\*



17694

### Two cobaltous PCPs: rapid catalytic degradation of POPs coupled with remarkable antibacterial and antifungal properties

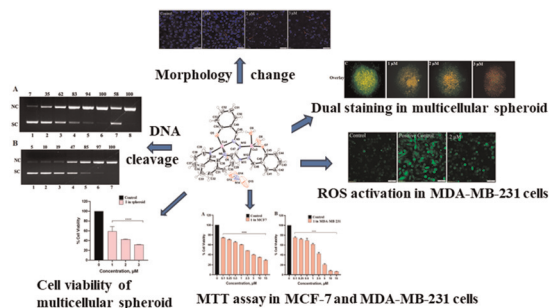
Shyam Goswami, Sourajyoti Ray, Kaushik Kumar Bharadwaj, Soma Majumder and Sanchay Jyoti Bora\*



17702

### A novel copper(II) complex with a salicylidene carbohydrazide ligand that promotes oxidative stress and apoptosis in triple negative breast cancer cells

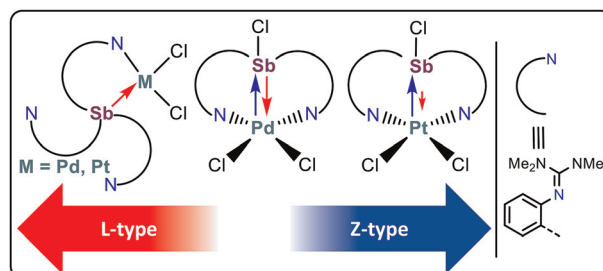
Kumudini Paliwal, Abinash Swain, Durga Prasad Mishra, P. K. Sudhadevi Antharjanam and Manjuri Kumar\*



17721

### Antimony centre in three different roles: does donor strength or acceptor ability determine the bonding pattern?

Richard Chlebík, Csilla Fekete, Roman Jambor, Aleš Růžicka, Zoltán Benkő\* and Libor Dostál\*



## CORRECTIONS

17727

**Correction: Plasma-assisted fabrication of ultra-dispersed copper oxides in and on C-rich carbon nitride as functional composites for the oxygen evolution reaction**

Mattia Benedet, Angelica Fasan, Davide Barreca, Chiara Maccato,\* Cinzia Sada, Silvia Maria Deambrosis, Valentina Zin, Francesco Montagner, Oleg I. Lebedev, Evgeny Modin, Gian Andrea Rizzi and Alberto Gasparotto

17728

**Correction: Bio-inspired copper complexes with Cu<sub>2</sub>S cores: (solvent) effects on oxygen reduction reactions**

Jordan Mangué, Iris Wehrung, Jacques Pécaut, Stéphane Ménage, Maylis Orio\* and Stéphane Torelli\*

