

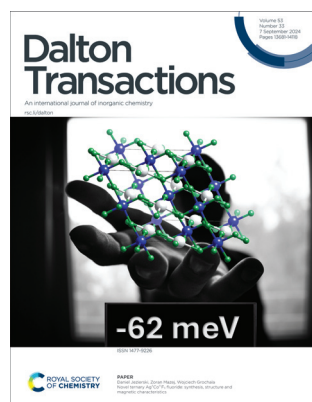
# Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica  
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## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 53(33) 13681-14118 (2024)



### Cover

See Daniel Jezierski, Zoran Mazej, Wojciech Grochala, pp. 13731–13742.

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### Inside cover

See Atena B. Solea, Fabio Zobi, Olimpia Mamula Steiner *et al.*, pp. 13743–13755.

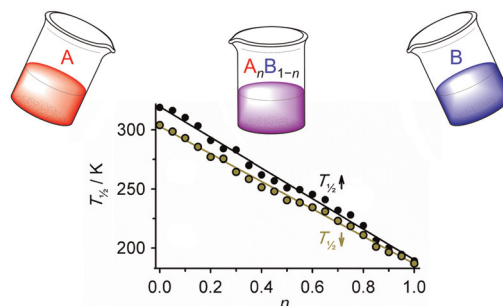
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## PERSPECTIVE

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### Mix and match – controlling the functionality of spin-crossover materials through solid solutions and molecular alloys

Malcolm A. Halcrow

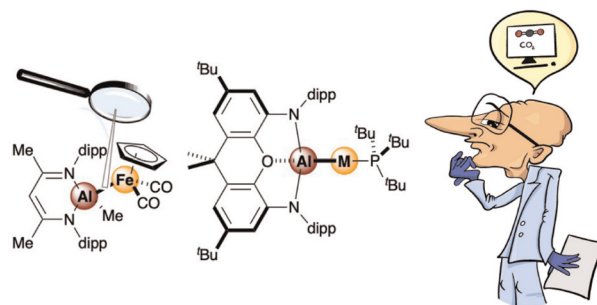


## FRONTIERS

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### Lessons from recent theoretical treatments of Al–M bonds (M = Fe, Cu, Ag, Au) that capture CO<sub>2</sub>

S. M. Supundrika Subasinghe and Neal P. Mankad\*



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Fundamental questions  
Elemental answers

13716

## Gold(i) complexes as powerful photosensitizers – a visionary frontier perspective

Andrea Pinto\* and Laura Rodríguez\*

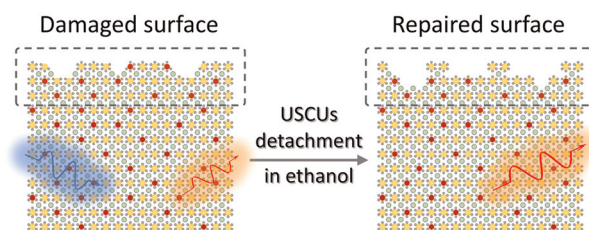


## COMMUNICATION

13726

## Elimination of surface defects in luminescent crystals through solid–liquid interface friction

Dongming Yuan, Aolin Wang, Zheyi Li, Shaohan Wang, Wenli Zhou\* and Shixun Lian

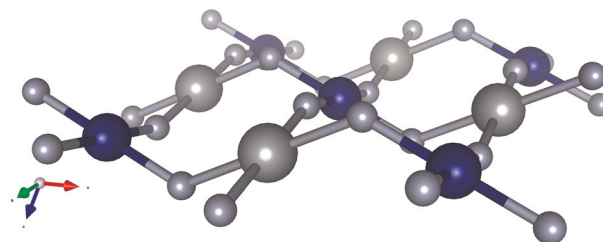


## PAPERS

13731

## Novel ternary Ag<sup>II</sup>Co<sup>III</sup>F<sub>5</sub> fluoride: synthesis, structure and magnetic characteristics

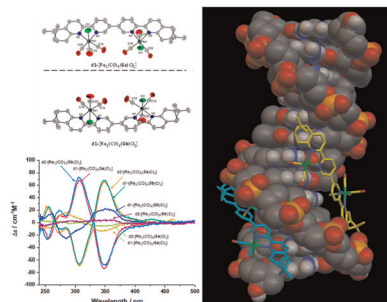
Daniel Jezierski,\* Zoran Mazej\* and Wojciech Grochala\*



13743

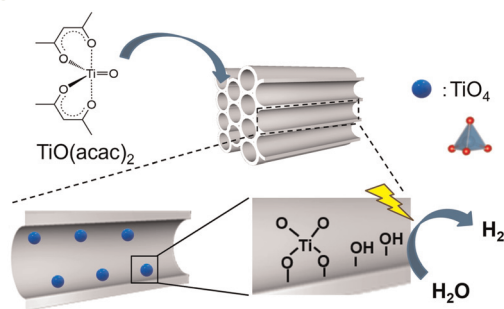
## The role of stereochemistry in the anticancer activity of Re(i) tricarbonyl complexes

Atena B. Solea,\* Gozde Demirci, Freya M. Harvey, Aurelien Crochet, Fabio Zobi\* and Olimpia Mamula Steiner\*



## PAPERS

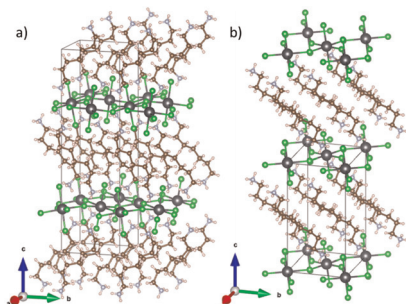
13756



### Stabilisation of molecular TiO<sub>4</sub> species on the pore surface of mesoporous silica for photocatalytic H<sub>2</sub> evolution

Hikaru Inada, Masashi Morita\* and Kazuyuki Maeda\*

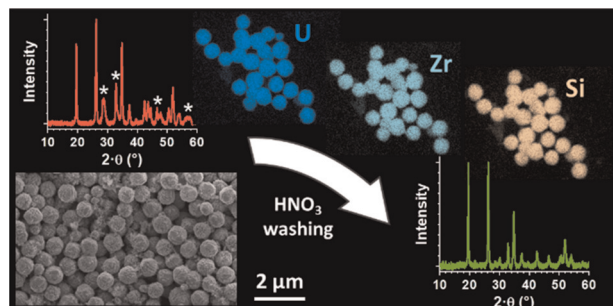
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### Influence of the even–odd effect on the crystal structure, band structure and optical properties of hybrid crystals of the [H<sub>3</sub>N-(CH<sub>2</sub>)<sub>n</sub>-NH<sub>3</sub>]PbX<sub>4</sub> (n = 4–8 and X = Cl, Br, and I) type

Mikhail I. Balanov, Alexei V. Emeline and Dmitry S. Shtarev\*

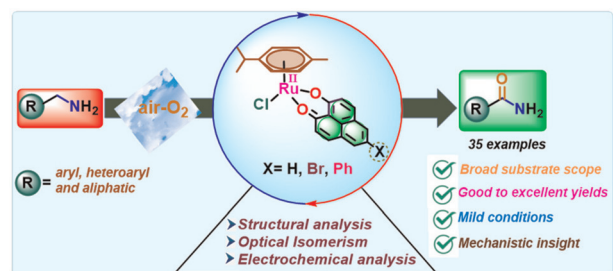
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### Hydrothermal synthesis of (Zr,U)SiO<sub>4</sub>: an efficient pathway to incorporate uranium into zircon

Paul Estevenon, Thomas Barral, Arthur Avallone, Mateo Jeffredo, Alexis De La Hos, Andrew Strzelecki, Xavier Le Goff, Stephanie Szenknect, Kristina Kvashnina, Philippe Moisy, Renaud Podor, Xiaofeng Guo and Nicolas Dacheux\*

13795



### Phenalenyl-ruthenium synergism for effectual catalytic transformations of primary amines to amides

Nilaj Bandopadhyay, Krishnendu Paramanik, Gayetri Sarkar, Suvojit Roy, Subhra Jyoti Panda, Chandra Shekhar Purohit, Bhaskar Biswas\* and Hari Sankar Das\*

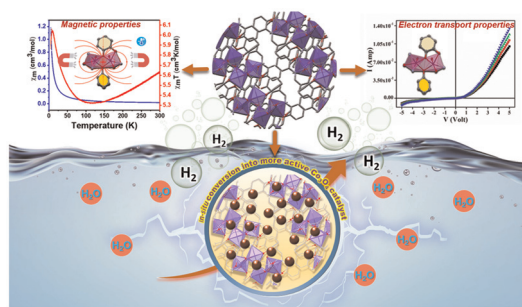


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### Decrypting the hydrogen evolution in alkaline water with novel magnetoactive cobalt(ii) complex-driven cobalt oxide electrocatalysts

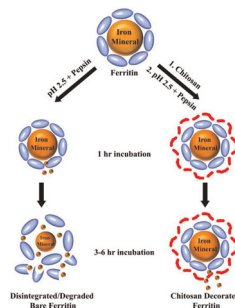
Subhajit Saha, Nilankar Diyali, Sangharaj Diyali, Subhra Jyoti Panda, Mainak Das, Sobhna Acharya, Prafulla Kumar Mudi, Monika Singh, Partha Pratim Ray, Chandra Shekhar Purohit and Bhaskar Biswas\*



13815

### Gastric stability of bare and chitosan-fabricated ferritin and its bio-mineral: implication for potential dietary iron supplements

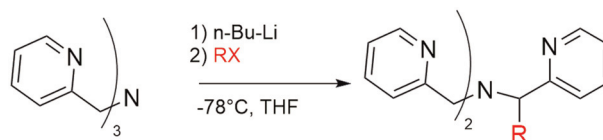
Rohit Kumar Raut, Gargee Bhattacharyya and Rabindra K. Behera\*



13831

### Novel ligands from direct benzylic functionalisation of tris(2-pyridylmethyl)amine

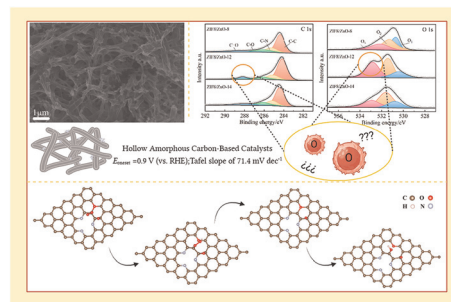
Paolo Zardi, Justyna Piękoś, A., Carlo Bravin, Klaus Wurst, Federico Droghetti, Mirco Natali, Giulia Licini, Alfonso Zamboni\* and Cristiano Zonta\*



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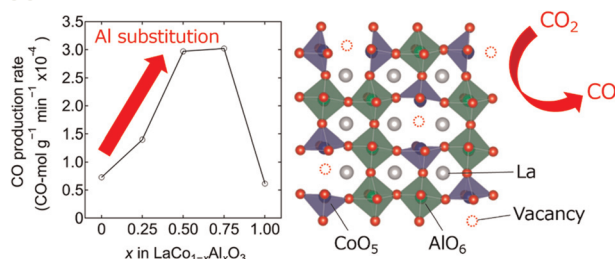
### ZnO-templated hollow amorphous carbon: oxygen adsorption and doping synergy for enhanced ORR catalysis

Guandong Wang, Yizhi Yin, Chenfeng Lin, Shixiong Min and Jinfu Ma\*



## PAPERS

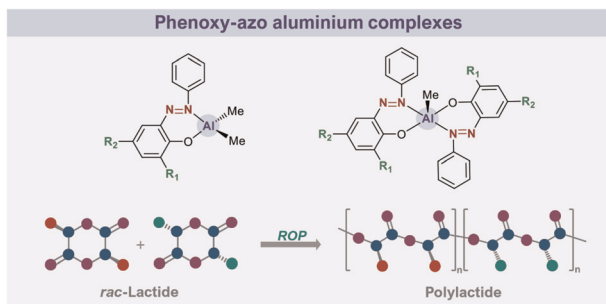
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### Enhanced chemical looping CO<sub>2</sub> conversion activity and thermal stability of perovskite LaCo<sub>1-x</sub>Al<sub>x</sub>O<sub>3</sub> by Al substitution

Yoshihiro Goto,\* Kiyoshi Yamazaki,\* Masashi Kikugawa and Masakazu Aoki

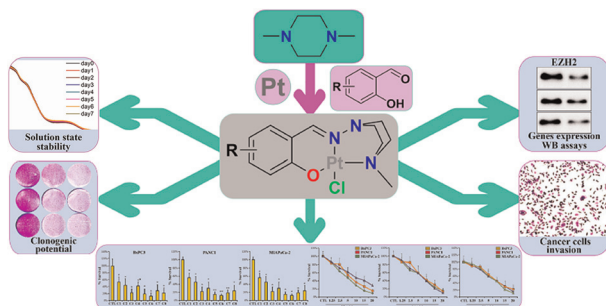
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### Aluminium complexes of phenoxy-azo ligands in the catalysis of *rac*-lactide polymerisation

Pattarawut Sumrit, Sirawan Kamavichanurat, Wasan Joopor, Worawat Wattanathana, Chutikan Nakornkhet and Pimpa Hormnirun\*

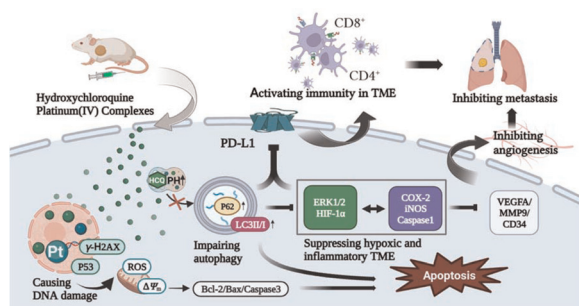
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### Salicylaldehyde-derived piperazine-functionalized hydrazine ligand-based Pt(II) complexes: inhibition of EZH2-dependent tumorigenesis in pancreatic ductal adenocarcinoma, synergism with PARP inhibitors and enhanced apoptosis

Zhimin Lv, Amjad Ali, Cheng Zou, Zerui Wang, Minglu Ma, Na Cheng, Man Shad, Huifang Hao, Yongmin Zhang\* and Faiz-Ur Rahman\*

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### A hydroxychloroquine platinum(IV) conjugate displaying potent antimetastatic activities by suppressing autophagy to improve the tumor microenvironment

Linming Li, Yan Chen, Ming Zhang, Suying Li, Shuaiqi Feng, Yan-Qin He, Ning Zhang, Zhifang Liu,\* Meifeng Liu\* and Qingpeng Wang\*

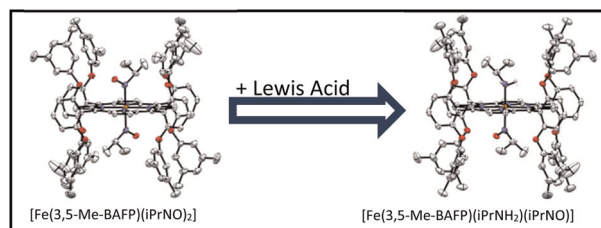


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### Vibrational properties of heme-nitrosoalkane complexes in comparison with those of their HNO analogs, and reactivity studies towards nitric oxide and Lewis acids

Jill B. Harland, Ashley B. LaLonde, Diamond J. Thomas, Daniel G. Castella, Jeff W. Kampf, Matthias Zeller, E. Ercan Alp, Michael Y. Hu, Jiyong Zhao and Nicolai Lehnert\*



13925

### Structure and performance regulation of energetic complexes through multifunctional molecular self-assembly

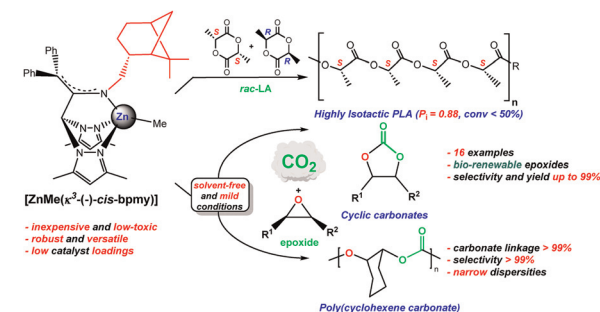
Wen-Shuai Dong, Hao-Zheng Mei, Qi-Yao Yu,\* Mei-Qi Xu, Zong-You Li and Jian-Guo Zhang\*



13933

### Exploring enantiopure zinc-scorpionates as catalysts for the preparation of polylactides, cyclic carbonates, and polycarbonates

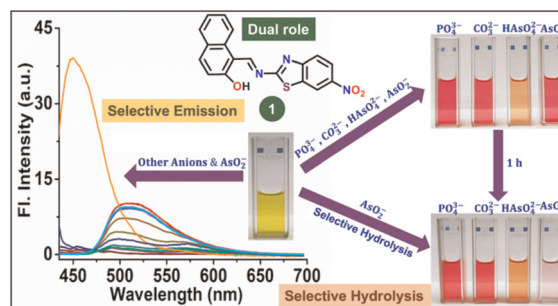
Marta Navarro, Sonia Sobrino, Israel Fernández, Agustín Lara-Sánchez, Andrés Garcés\* and Luis F. Sánchez-Barba\*



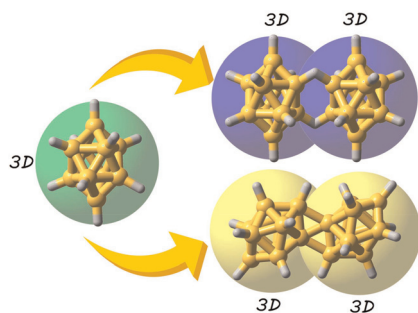
13950

### Dual role of arsenite in hydrolysis and post-hydrolysis fluorescence sensing of selective pH-dependent probes

Pushpendra Singh and Kalyan K. Sadhu\*



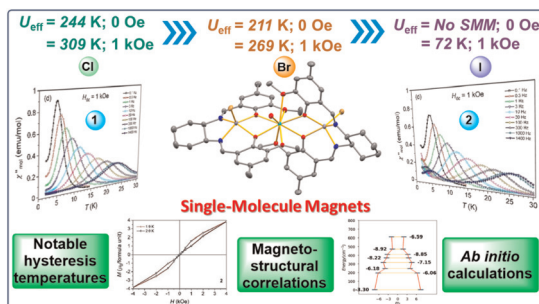
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### Intercluster B–H and B–B aggregation in iso- and *trans*-[B<sub>20</sub>H<sub>18</sub>]<sup>2-</sup>. Spherical aromaticity in borane dimers

Peter L. Rodríguez-Kessler and Alvaro Muñoz-Castro\*

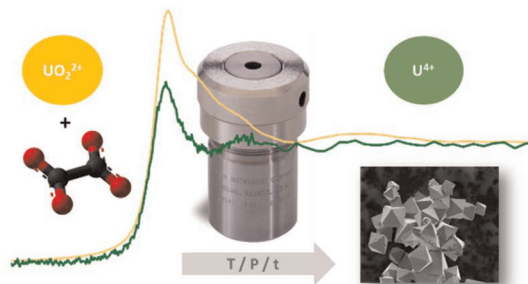
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### The effect of co-ligands on the performance of single-molecule magnet behaviours in a family of linear trinuclear Zn–Dy–Zn complexes with a compartmental Schiff base

Rakhi Nandy, Zvonko Jagličić, Narayan Ch. Jana, Paula Brandão, Fabián Bustamante, Daniel Aravena and Anangamohan Panja\*

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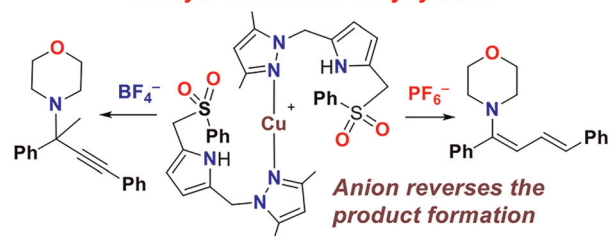


### Reductive hydrothermal conversion of uranyl oxalates into UO<sub>2+x</sub> monitored by *in situ* XANES analyses

Sofian Benarib, Maëva Munoz, Isabelle Kieffer, Jean-Louis Hazemann, Nicolas Dacheux and Nicolas Clavier\*

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### Two, Three and Four Coordinate Copper(I) Complexes for Hydroamination-Alkynylation



### Copper(I) complexes bearing pyrrole-bridged S,N and N-donor ligands as catalysts for tandem hydroamination–alkynylation: effect of anions on product formation

Munmun Mondal and Ganesan Mani\*



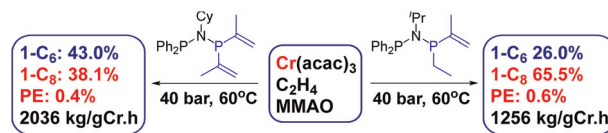


## PAPERS

14011

### Highly active chromium-based selective ethylene tri-/tetramerization catalysts supported by alkenylphosphanyl PNP ligands

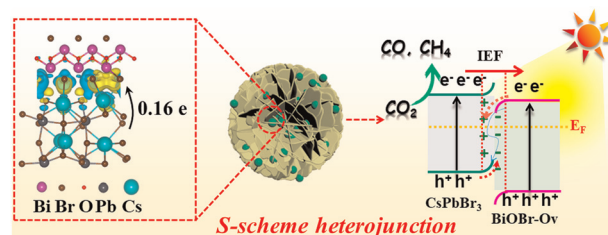
Tao Zhou, Jing Zuo, Haojie Xie, Xing Zhao, Mei-Xin Zhao\* and Jun Zhang\*



14018

### Step-scheme CsPbBr<sub>3</sub>/BiOBr photocatalyst with oxygen vacancies for efficient CO<sub>2</sub> photoreduction

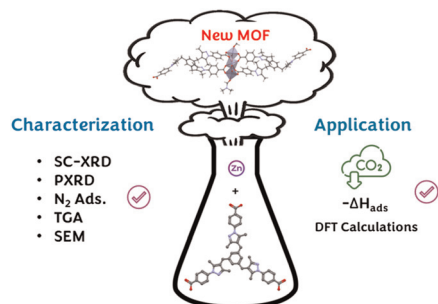
Wanjun Sun,\* Jifei Liu, Feitian Ran, Na Li,\* Zengpeng Li, Yuanyuan Li\* and Kai Wang\*



14028

### Nitrogen-enriched flexible metal-organic framework for CO<sub>2</sub> adsorption

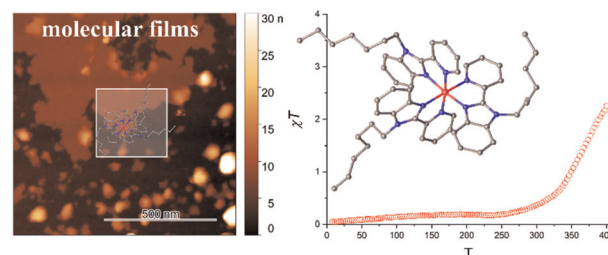
Andrés Lancheros,\* Subhadip Goswami, Ximena Zarate, Eduardo Schott\* and Joseph T. Hupp



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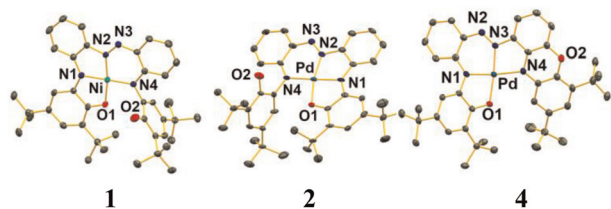
### Above room temperature spin crossover in mononuclear iron(II) complexes featuring pyridyl-benzimidazole bidentate ligands adorned with aliphatic chains

Alexandra Šagátová, Kamil Kotrle, Barbora Brachňáková, Lubomír Havlíček, Ivan Nemeč, Radovan Herchel, Monika Hofbauerová, Yuriy Halahovets, Peter Šiffalovič, Erik Čižmár, Ondřej F. Fellner and Ivan Šalitroš\*



## PAPERS

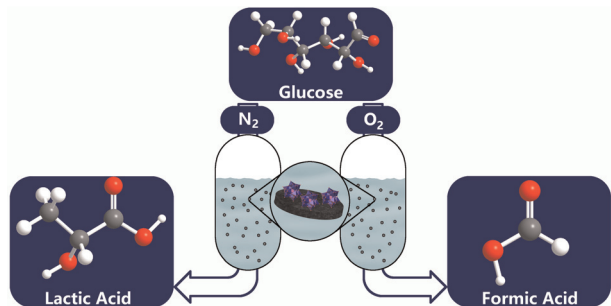
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**Ni(II) and Pd(II) complexes of a new redox-active pentadentate azo-appended 2-aminophenol ligand: Pd(II)-assisted intraligand cyclization forms a phenoxazinyl ring**

Saumitra Bhowmik, Arunava Sengupta and Rabindranath Mukherjee\*

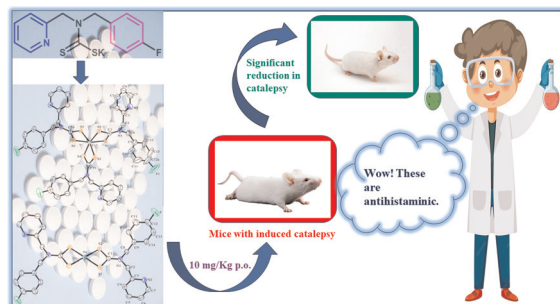
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**Supported  $H_8PV_5Mo_7O_{40}$  on activated carbon: Synthesis and Investigation of influencing factors for catalytic performance**

Anne Wesner, Max P. Papajewski, Leon Schidowski, Charlotte Ruhmlieb, Maximilian J. Poller and Jakob Albert\*

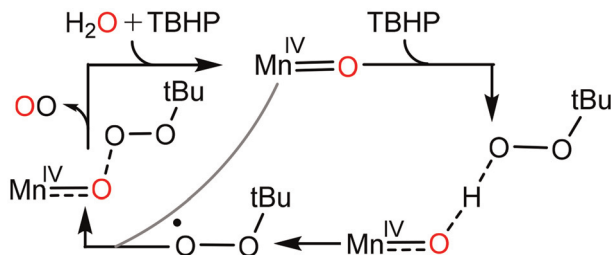
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**Dithiocarbamate-based novel anti-histaminic agents: synthesis, characterization, crystal structure and thermal study**

Anupam Singh, Rajesh Kumar, Riya Patel, Trishna, Ram Nayan Gautam, M. K. Bharty and Lal Bahadur Prasad\*

14089



**Mechanistic elucidation of  $O_2$  production from  $tBuOOH$  in water using  $[Mn_2(mcbpen)_2(H_2O)_2]^{2+}$  ( $Mn(II)$ ) as the catalyst: a DFT study**

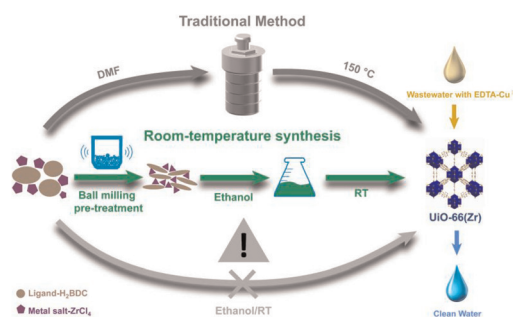
Alireza Ariafard,\* Matthew Longhurst, Gerhard F. Swiegers and Robert Stranger\*



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## Room-temperature synthesis of a Zr–UiO-66 metal–organic framework via mechanochemical pretreatment for the rapid removal of EDTA-chelated copper from water

Yi-nan Wu, Junyi Cai, Shuliang Hou, Rui Chen, Ziqi Wang, Daniel Manaye Kabtamu, Osman Ahmed Zelekew and Fengting Li\*



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## Mg<sub>2-x</sub>Ca<sub>x</sub>Al layered double hydroxide-derived mixed metal oxide porous hexagonal nanoplatelets for CO<sub>2</sub> sorption

Bhojaraj, C. Nethravathi\* and Michael Rajamathi\*

