

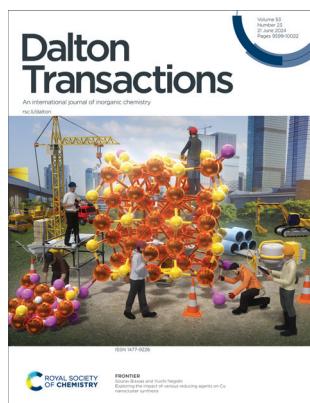
# Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica  
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ISSN 1477-9226 CODEN DTARAF 53(23) 9599–10022 (2024)



### Cover

See Sourav Biswas and Yuichi Negishi,  
pp. 9657–9663.

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### Inside cover

See José M. Vila et al.,  
pp. 9680–9691.

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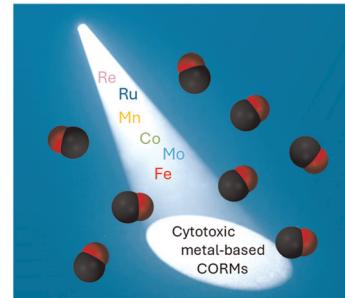
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## PERSPECTIVE

9612

### Metal-based carbon monoxide releasing molecules with promising cytotoxic properties

Ahmed M. Mansour,\* Rabaa M. Khaled, Giarita Ferraro, Ola R. Shehab and Antonello Merlino\*

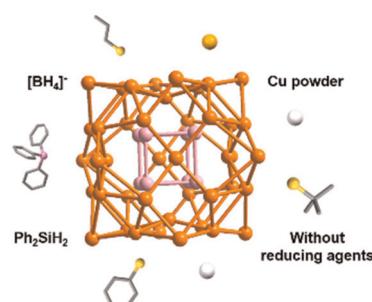


## FRONTIER

9657

### Exploring the impact of various reducing agents on Cu nanocluster synthesis

Sourav Biswas and Yuichi Negishi\*





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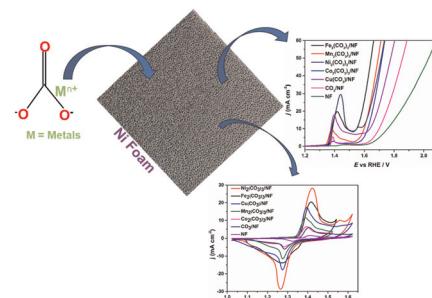


## COMMUNICATIONS

9664

**First-row transition metal carbonates catalyze the electrochemical oxygen evolution reaction: iron is master of them all**

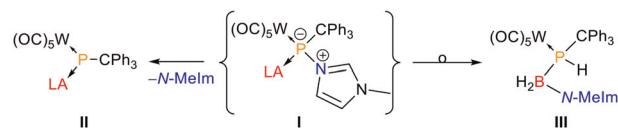
Iranna Udachyan, Jayesh T. Bhanushali, Tomer Zidki, Amir Mizrahi and Dan Meyerstein\*



9670

**A metal and a metalloid Lewis acid bridged by a  $\mu_2$ -phosphinidene**

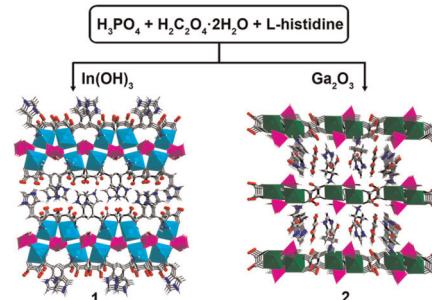
David Biskup, Gregor Schnakenburg, Arturo Espinosa Ferao\* and Rainer Streubel\*



9675

**Two histidine-templated metal phosphate-oxalates: solvent-free synthesis, luminescence, and proton-conducting properties**

Ying Li, Yulin Wang, Juan Cheng, Ling Huang, Daojiang Gao, Guohong Zou, Yan Zhao\* and Zhien Lin\*

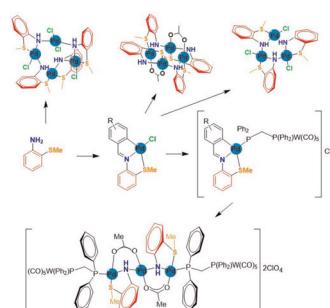


## PAPERS

9680

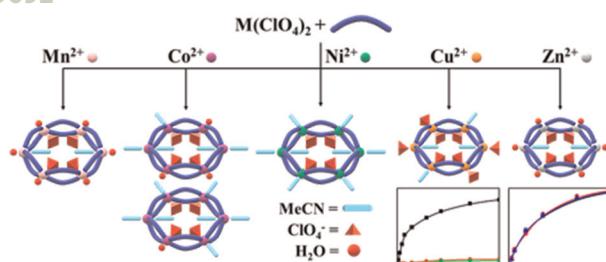
**Reactivity of Schiff base-[C,N,S] pincer palladacycles: hydrolysis renders singular trinuclear, tetranuclear, and heteropentanuclear  $Pd_3W_2$  coordinated complexes**

Francisco Reigosa, Paula M. Polo, M. Teresa Pereira and José M. Vila\*



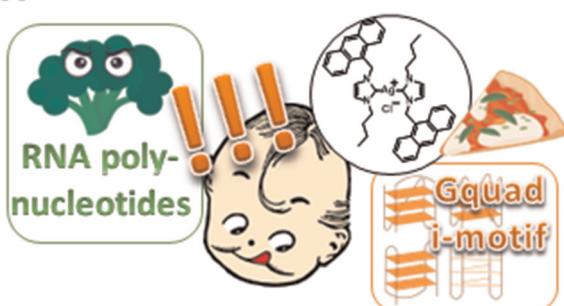
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9692

**Coordinating nature of  $\text{M}_6\text{L}_{12}$  double-stranded macrocycles: co-ligand competition of perchlorate, water, and acetonitrile depending on metal(II) ions**

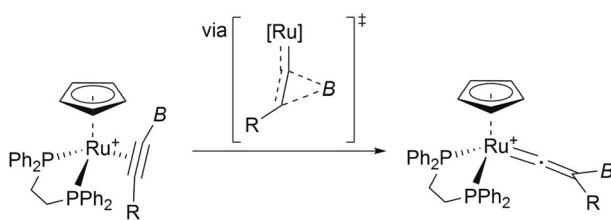
Seonghyeon An, Jihun Han, Dongwon Kim, Haeri Lee\* and Ok-Sang Jung\*

9700

**Exploring the interaction between a fluorescent Ag(I)-biscarbene complex and non-canonical DNA structures: a multi-technique investigation**

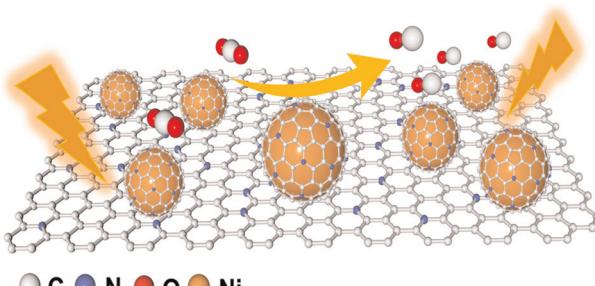
Francesca Binacchi,\* Ester Giorgi,\* Giacomo Salvadori,\* Damiano Cirri, Mariassunta Stifano, Aurora Donati, Linda Garzella, Natalia Busto, Begona Garcia, Alessandro Pratesi and Tarita Biver

9715

**vinylidene rearrangements via 1,2-boryl migration****Vinylidene rearrangements of internal borylalkynes via 1,2-boryl migration**

Takahiro Iwamoto,\* Takuya Mitsubo, Kosuke Sakajiri and Youichi Ishii\*

9724

**Guanine-derived carbon nanosheet encapsulated Ni nanoparticles for efficient  $\text{CO}_2$  electroreduction**

Ying Peng, Shuo Chen, Zhengli Hu, Mengqi Yin, Lishun Pei, Qiaohua Wei\* and Zailai Xie\*

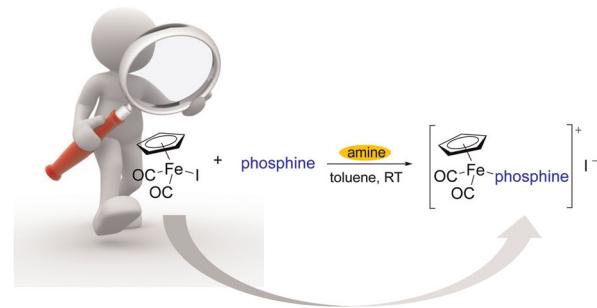


## PAPERS

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**Amine-catalyzed substitution in CpFe(CO)<sub>2</sub>I by phosphine and bisphosphine ligands**

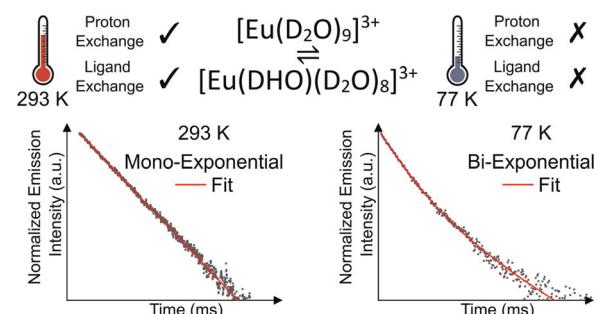
Aneta Kosińska, Daria Jamroz, Agnieszka J. Rybarczyk-Pirek, Sławomir Wojtulewski, Marcin Palusiak, Janusz Zakrzewski and Bogna Rudolf\*



9741

**Step-wise changes in the excited state lifetime of [Eu(D<sub>2</sub>O)<sub>9</sub>]<sup>3+</sup> and [Eu(DOTA)(D<sub>2</sub>O)]<sup>-</sup> as a function of the number of inner-sphere O–H oscillators**

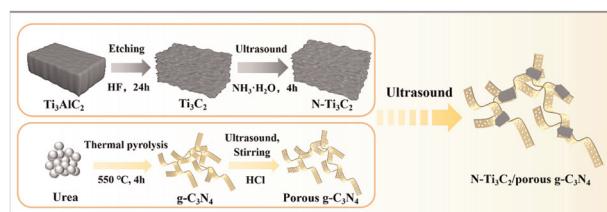
Nicolaj Kofod\* and Thomas Just Sørensen



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**N-doped Ti<sub>3</sub>C<sub>2</sub>-reinforced porous g-C<sub>3</sub>N<sub>4</sub> for photocatalytic contaminants degradation and nitrogen reduction**

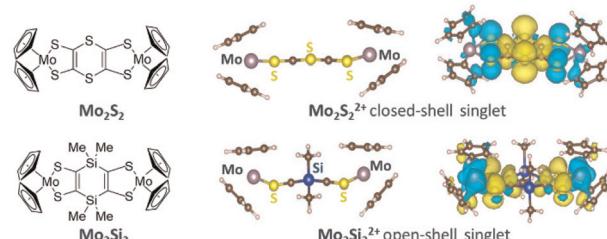
Ziyang Li, Mingxuan Sun,\* Haohao Chen, Junjie Zhao, Xiangzhi Huang, Yu Gao, Huanying Teng and Chen Chen



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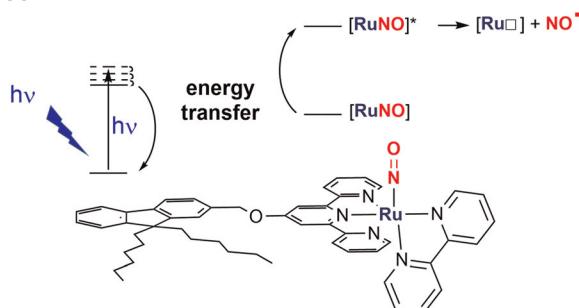
**Radical and diradical states of bis(molybdenocene dithiolene) complexes**

Khalil Youssef, Corentin Poidevin, Antoine Vacher, Arnaud Fihey, Yann Le Gal, Thierry Roisnel and Dominique Lorcy\*



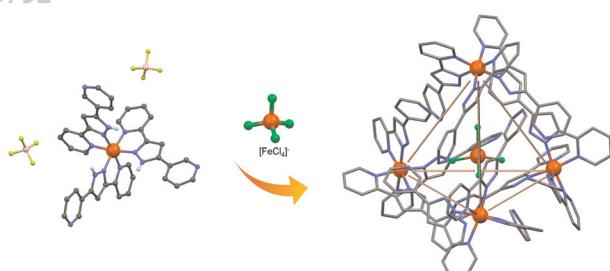
## PAPERS

9777

**Ruthenium nitrosyl complexes with NO release capability: the use of fluorene as an antenna**

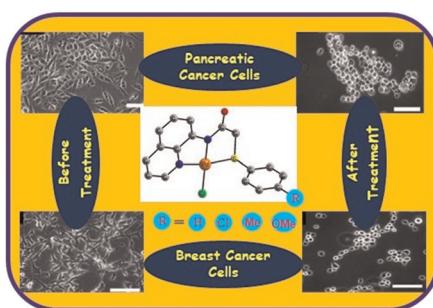
Vladyslav Mudrak, Pascal G. Lacroix,\* Marine Tassé, Sonia Mallet-Ladeira, Alexander Roshal\* and Isabelle Malfant\*

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**Self-assembly of a supramolecular spin-crossover tetrahedron**

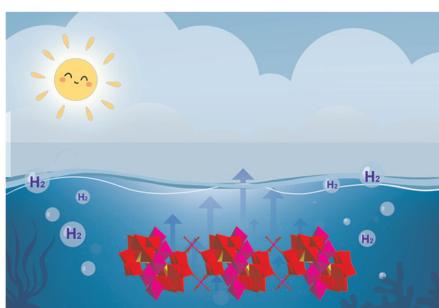
Hannah H. Nielsen, Pol Vilariño, Gemma Rodríguez, Florian Trepard, Olivier Roubeau,\* Guillem Aromí\* and David Aguilà\*

9798

**Pd(II) complexes bearing NNS pincer ligands: unveiling potent cytotoxicity against breast and pancreatic cancer**

Deepika Tanwar, Tashmeen Kaur, Athul Sudheendranath, Umesh Kumar\* and Deepika Sharma\*

9812

**A sandwiched  $\text{Co}_4$ -added polyoxometalate for efficient visible light-driven hydrogen evolution**

Zhen-Wen Wang, Chong-An Chen and Guo-Yu Yang\*

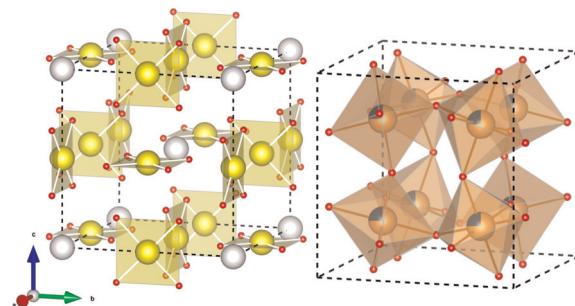


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**High-pressure synthesis of A-site ordered perovskite  $\text{PbMn}_3(\text{CrMn}_3)\text{O}_{12}$  with long-range anti-ferromagnetic ordering and a spin glass transition**

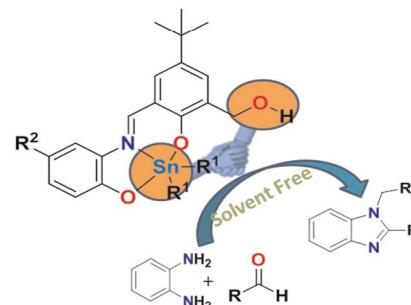
Man Xue, Xiaohui Yan, Deyang Xu, Bin Zheng, Wenbin Guo,\* Xiaojun Kuang, Xiuyun Lei\* and Congling Yin\*



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**Syntheses and exploration of the catalytic activities of organotin(IV) compounds**

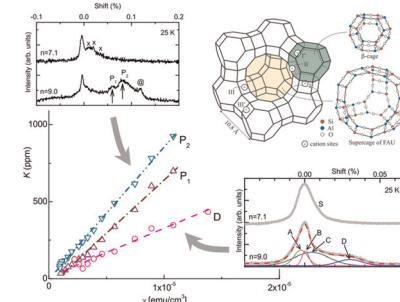
Manish Kumar and Hari Pada Nayek\*



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**Hyperfine couplings between the paramagnetic moment and nuclei in the metallic phase of low silica X zeolite loaded with potassium**

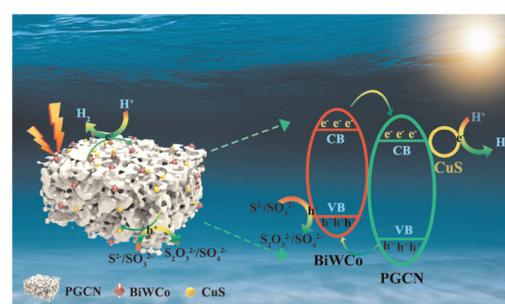
Mutsuo Igarashi,\* Tadashi Shimizu, Atsushi Goto, Kenjiro Hashi, Keiko Yamamichi and Takehito Nakano



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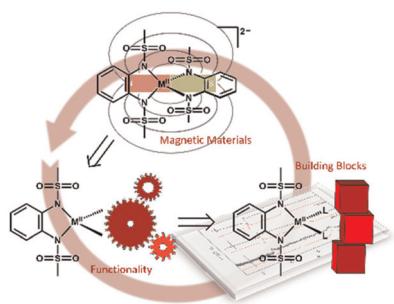
**Enhanced performance of a  $\text{Na}_{3.5}\text{Co}_4[\text{Bi}_2\text{Co}_2\text{W}_{19.75}\text{O}_{70}(\text{H}_2\text{O})_6]$ /porous graphitic carbon nitride heterojunction based photocatalyst realized by the addition of copper sulfide nanoparticles**

Qiushuang Jiang, Zhuopeng Liu, Xinming Wang,\* Huiyuan Ma\* and Haijun Pang



## PAPERS

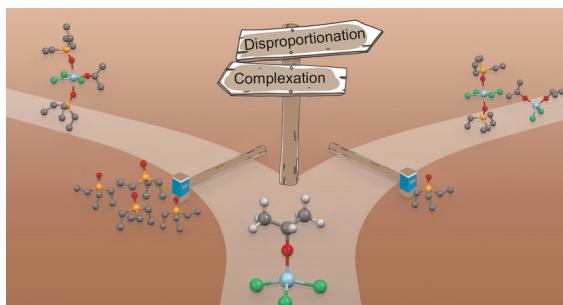
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**Precursor molecules for 1,2-diamidobenzene containing cobalt(II), nickel(II) and zinc(II) complexes – synthesis and magnetic properties**

David Hunger, Simon Suhr, Valentin Bayer, Uta Albold, Wolfgang Frey, Biprajit Sarkar\* and Joris van Slageren\*

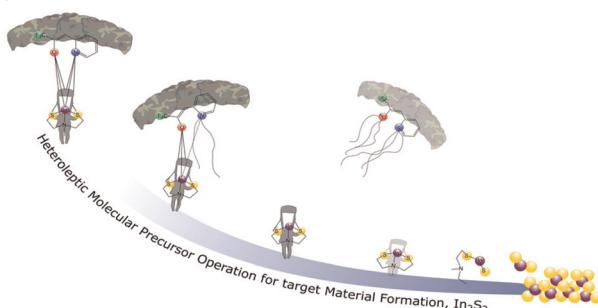
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**Complexation and disproportionation of group 4 metal (alkoxy) halides with phosphine oxides**

Carlotta Seno, Rohan Pokratath, Ajmal Roshan Unniram Parambil, Dietger Van den Eynden, Evert Dhaene, Alessandro Prescimone and Jonathan De Roo\*

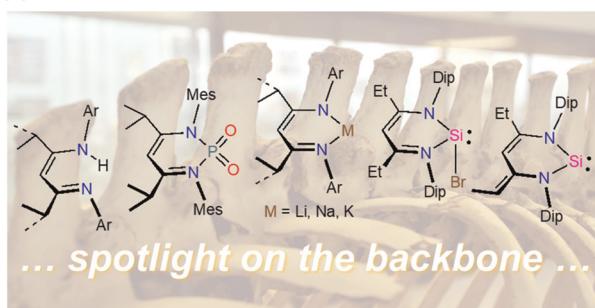
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**Synthesis and theoretical study of a mixed-ligand indium(III) complex for fabrication of  $\beta$ -In<sub>2</sub>S<sub>3</sub> thin films via chemical vapor deposition**

Chijioke Kingsley Amadi, Touraj Karimpour, Maziar Jafari, Zhiyuan Peng, David Van Gerven, Veronika Brune, Fabian Hartl, Mohamed Siaj and Sanjay Mathur\*

9887



**Alkyl backbone variations in common  $\beta$ -diketiminate ligands and applications to N-heterocyclic silylene chemistry**

Connor Bourne, Huanhuan Dong, Katharine McKain, Lena C. Mayer, Aidan P. McKay, David B. Cordes, Alexandra M. Z. Slawin and Andreas Stasch\*

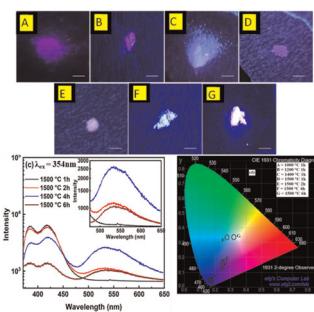


## PAPERS

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**Dual precipitating reagents-assisted deep blue-emitting borate and near-white oxide-based luminescent materials**

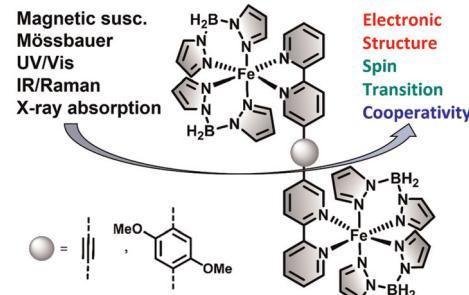
Mridula Ghosh and Bibhuti B. Nayak\*



9909

**Spin crossover in dinuclear iron(II) complexes bridged by bis-bipyridine ligands: dimer effects on electronic structure, spectroscopic properties and spin-state switching**

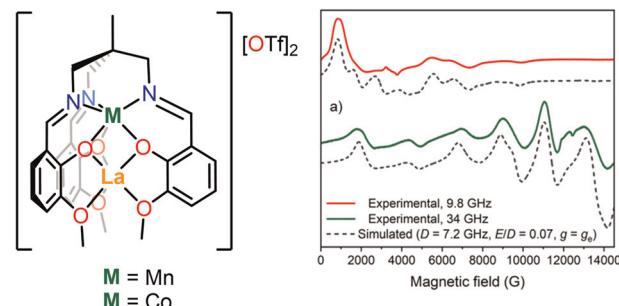
Clara Trommer, Eike Kuhlemann, Tobias A. Engesser, Marcel Walter, Sangeeta Thakur, Wolfgang Kuch\* and Felix Tuczek\*



9921

**Heterobimetallic 3d–4f complexes supported by a Schiff-base tripodal ligand**

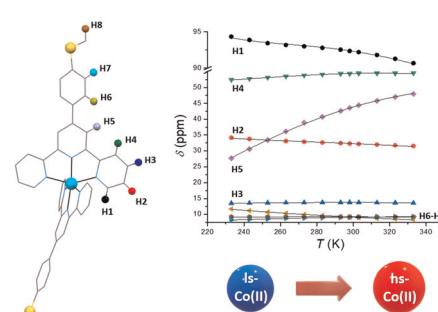
Till Neumann, Benedict C. Thompson, Denny Hebron, Daniel M. Graycon, Alberto Collauto, Maxie M. Roessler, Daniel W. N. Wilson and Rebecca A. Musgrave\*



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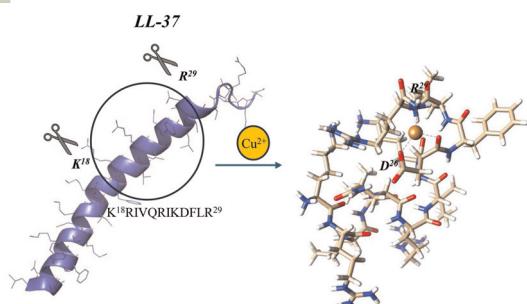
**Thermodynamics of spin crossover in a bis(terpyridine) cobalt(II) complex featuring a thioether functionality**

Lúcio Ferraz Lobato, Samuele Ciattini, Angelo Gallo, Rafael A. Allão Cassaro, Lorenzo Sorace\* and Giordano Poneti\*

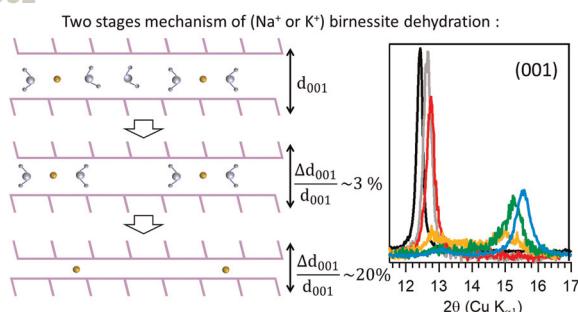


## PAPERS

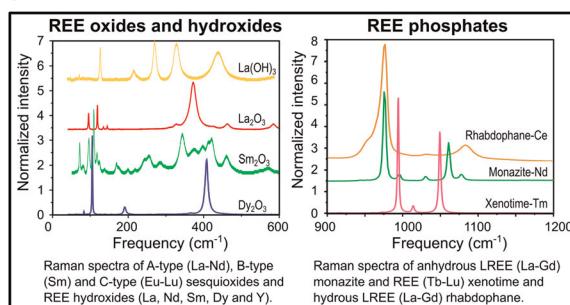
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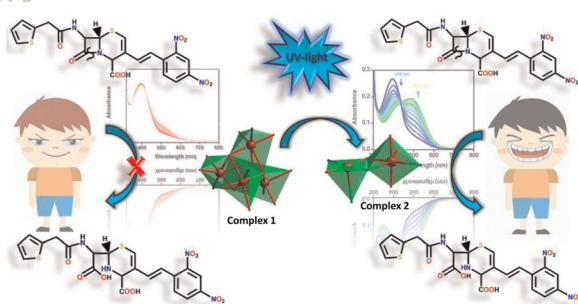
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## Application of a modern theoretical approach to the study of the interaction of KR-12 peptides derived from human cathelicidins with Cu(II) ions

Jakub Brzeski, Dariusz Wyrzykowski and Joanna Makowska\*

## The dehydration mechanism of Na and K birnessites: a comprehensive multitechnique study

E. André,\* D. Cornu,\* L. Pérez Ramírez, P. Durand, J.-J. Gallet, F. Bournel, F. Rochet, C. Ruby, C. Carteret and R. Coustel\*

## Raman spectroscopic study of anhydrous and hydrous REE phosphates, oxides, and hydroxides

Nicole C. Hurtig,\* Alexander P. Gysi, Sarah E. Smith-Schmitz and Daniel Harlov

## UV-assisted photochemical transformation of a tetranuclear copper(II) complex: a DFT supported study on $\beta$ -lactamase inhibitory activity towards antibiotic resistance

Sneha Biswas, Suhana Karim,\* Pradip Bhunia, Soumadip Banerjee, Abhijit K. Das and Debasis Das\*

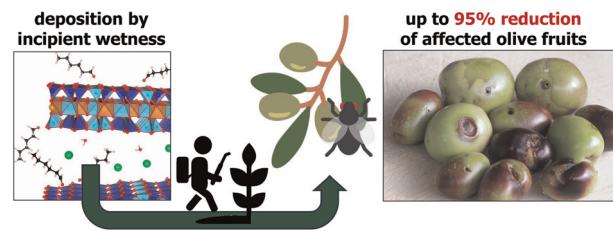


## PAPERS

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**Aldehyde-containing clays: a sustainable approach against the olive tree pest, *Bactrocera oleae***

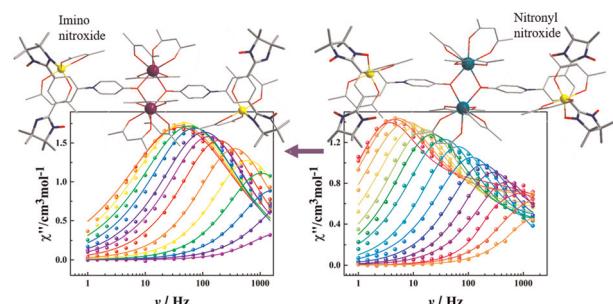
Stefano Econdi, Chiara Bisio,\* Fabio Carniato, Stefano Marchesi, Geo Paul, Elisabetta Gargani, Ilaria Cutino, Alessandro Caselli and Matteo Guidotti\*



10007

**Tuning spin dynamics of binuclear Dy complexes using different nitroxide biradical derivatives**

Hongwei Song, Chaoyi Jin, Xiaotong Wang, Junfang Xie, Yue Ma, Jinkui Tang\* and Licun Li\*



## CORRECTIONS

10018

**Correction: Single molecule magnet features in luminescent lanthanide coordination polymers with heptacoordinate Dy/Yb(III) ions as nodes**

Xiang-Tao Dong, Meng-Qing Yu, Yong-Bo Peng, Guo-Xing Zhou, Guo Peng\* and Xiao-Ming Ren\*



10019

**Correction: Computational demonstration of isomer- and spin-state-dependent charge transport in molecular junctions composed of charge-neutral iron(II) spin-crossover complexes**

Nicolás Montenegro-Pohlhammer,\* Senthil Kumar Kuppusamy,\* Gloria Cárdenas-Jirón, Carmen J. Calzado and Mario Rubén