

# Dalton Transactions

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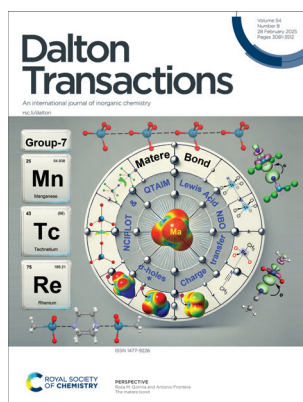
## IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 54(8) 3081–3512 (2025)



**Cover**  
See Masahisa Osawa  
pp. 3106–3112.

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**Inside cover**  
See Rosa M. Gomila and  
Antonio Frontera,  
pp. 3095–3105.

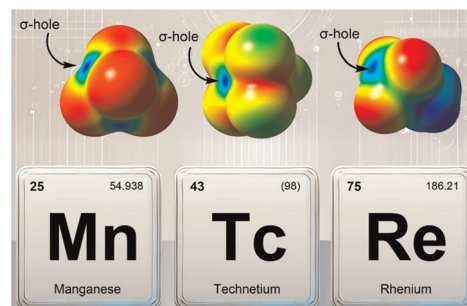
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3095.

## PERSPECTIVE

3095

### The materes bond

Rosa M. Gomila and Antonio Frontera\*

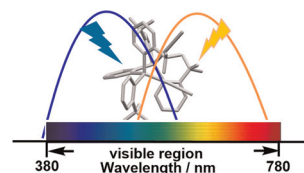


## FRONTIER

3106

### Study of the molecular design and synthesis status of metal complexes as unimolecular luminescent materials for white light emission

Masahisa Osawa



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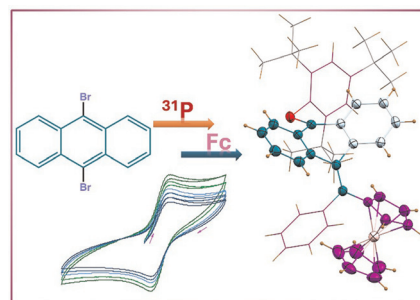
Fundamental questions  
Elemental answers

## COMMUNICATION

3113

### Contorting the hetero phosphaquinoind: synthesis and electronic insights into a non-planar, ferrocenyl phosphaquinoind

Rajesh Deka,\* Samir Chattopadhyay and Andreas Orthaber\*

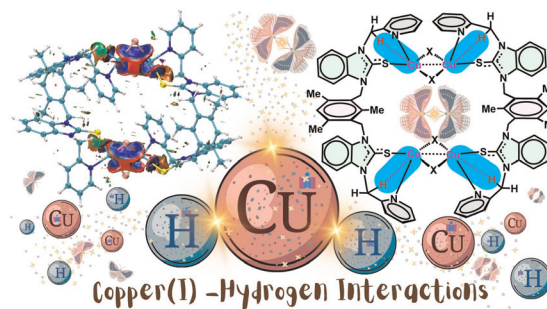


## PAPERS

3118

### Probing the nature of intramolecular (sp<sup>3</sup>)C–H...Cu(I) interactions in organo thione copper(I) cages

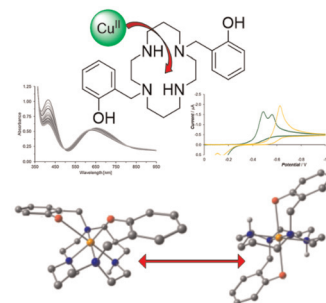
Girbide Amitkumar Ramakant, Gopendra Muduli, Rakesh Kumar Rai and Ganesan Prabusankar\*



3127

### Unusual variability of isomers in copper(II) complexes with 1,8-bis(2-hydroxybenzyl)-cyclam

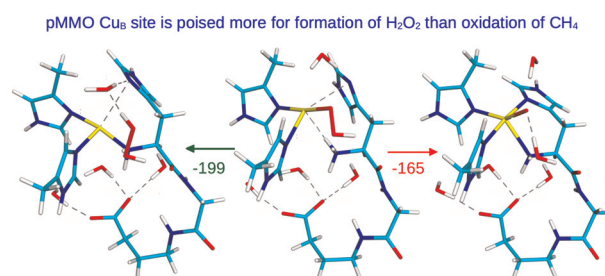
Milan Mađar, Jan Faltejsek, Hana Bušková, Lucie Koláčná, Adam Jaroš, Jan Kotek, Michal Straka, Vojtěch Kubiček\* and Jiří Ludvík



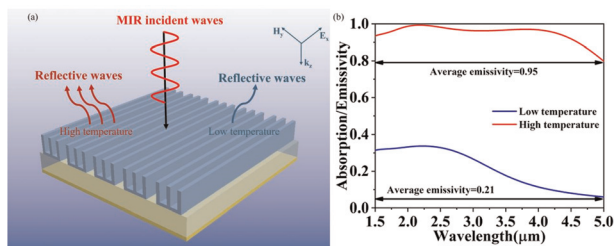
3141

### The Cu<sub>B</sub> site in particulate methane monooxygenase may be used to produce hydrogen peroxide

Kristoffer J. M. Lundgren, Lili Cao, Magne Torbjörnsson, Erik D. Hedegård and Ulf Ryde\*



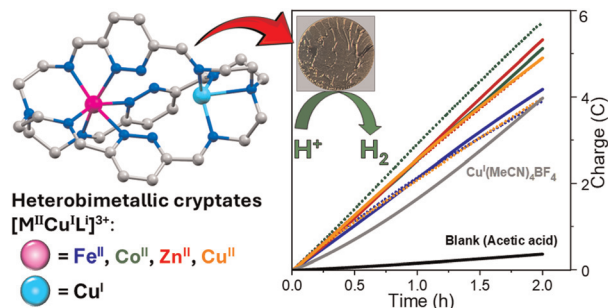
3157



### Thermal management broadband-emitting device based on VO<sub>2</sub> applied in the mid-infrared band

Ying Zheng, Zhiyou Wang,\* Qianju Song, Zao Yi,\* Shubo Cheng and Yougen Yi

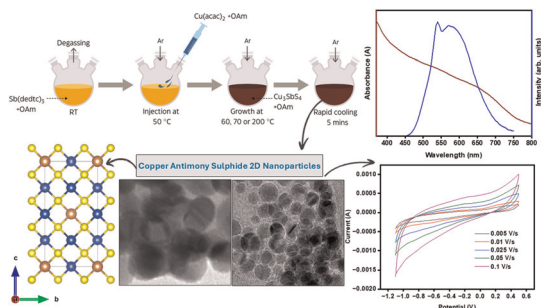
3165



### Testing mixed metal bimetallic, and monometallic, cryptates for electrocatalytic hydrogen evolution

Varinder Singh, Matthew G. Robb and Sally Brooker\*

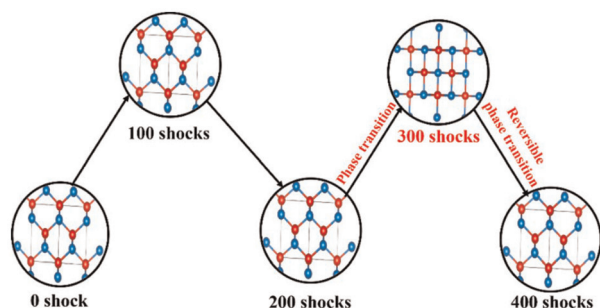
3174



### Effect of growth dynamics on the structural, photophysical and pseudocapacitance properties of famatinite copper antimony sulphide colloidal nanostructures (including nanosheets)

Kimberly Weston, Richard A. Taylor,\* Kim Kisslinger and Shobha Mantripragada

3188



### Reversible phase transition and tunable band gap in zinc telluride induced by acoustic shock exposure

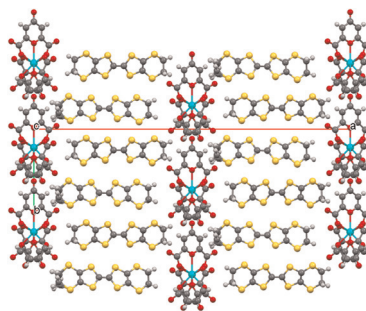
Oviya Sekar, F. Irine Maria Bincy, Raju Suresh Kumar, Kannappan Perumal, Ikhyun Kim\* and S. A. Martin Britto Dhas\*



3207

### Radical-cation salts of BEDT-TTF with tris-coordinated racemic dysprosium(III) and terbium(III) anions

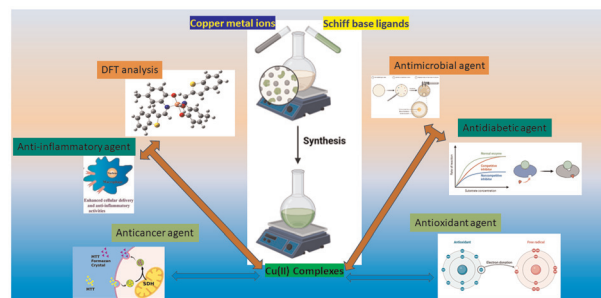
Emily Howarth, Jordan Lopez, Joseph O. Ogar, Toby J. Blundell, Hiroki Akutsu, Yasuhiro Nakazawa, Shusaku Imajo, Yoshihiko Ihara, Simon J. Coles, Peter N. Horton, Jeppe Christensen and Lee Martin\*



3216

### Unveiling the multifaceted bioactivity of copper(II)–Schiff base complexes: a comprehensive study of antioxidant, anti-bacterial, anti-inflammatory, enzyme inhibition and cytotoxic potentials with DFT insights

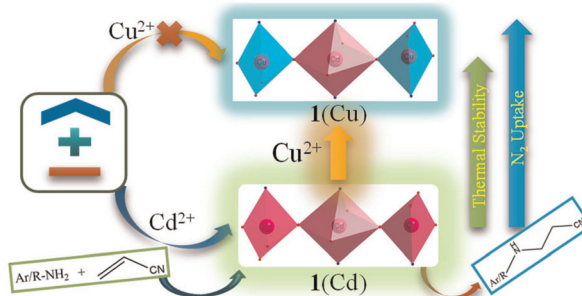
T. M. Dhanya, M. R. Prathapachandra Kurup, K. J. Rajimon, G. Anjali Krishna, Jibin K. Varughese, K. G. Raghu, Sachin Philip, K. M. Divya, Maria Augustine and P. V. Mohanan\*



3235

### A Cd-based crystalline network material: catalytic properties and post-synthetic metal-ion metathesis with enhanced stability and gas sorption behaviour

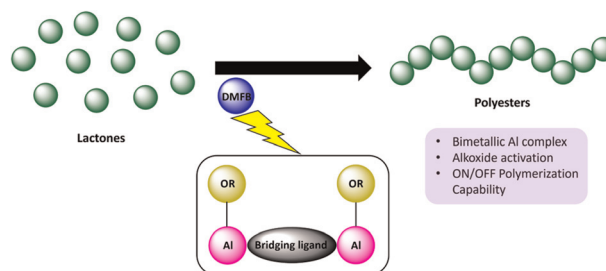
Chhatan Das, Arunava Misra, Mohabul Alam Mondal and Partha Mahata\*



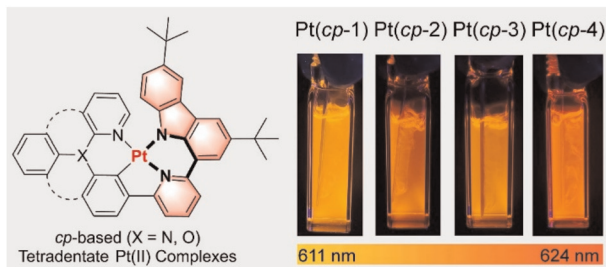
3246

### Bimetallic constrained aluminum alkoxide complexes for ring-opening polymerization of cyclic esters: activity enhancement via cationic activation

Narongchai Kanhanond, Phongnarin Chumsaeng, Supawadee Namuangruk and Khamphree Phomphrai\*



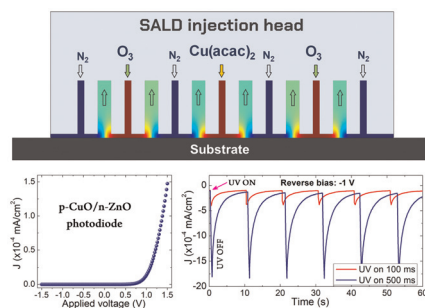
3256



### Carbazolylpyridine (*cp*)-based tetradentate platinum(II) complexes containing fused 6/5/6 metallocycles

Chengyao Zhang, Lijie Dou, Xia Wang, Kewei Xu, Jianqiang Chen, Feng Zhan, Guijie Li,\* Yun-Fang Yang\* and Yuanbin She\*

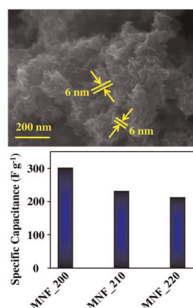
3266



### Atmospheric pressure spatial atomic layer deposition of p-type CuO thin films from copper(II) acetylacetonate and ozone for UV detection

Hung-Anh Tran Vu, Duc-Trung Pham, Hang Tran Thi My, Duc Anh Duong, Abdullah H. Alshehri, Van Tan Tran, Thi Minh Hien Nguyen, De Pham-Cong and Viet Huong Nguyen\*

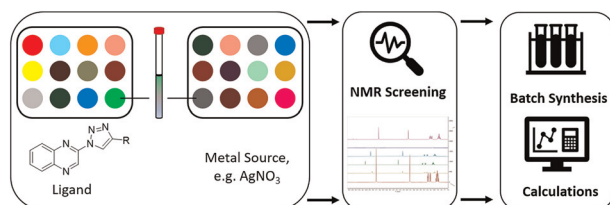
3277



### Structural-morphological insights into optimization of hydrothermally synthesized MoSe<sub>2</sub> nanoflowers for improving supercapacitor applications

Poonam Yadav, Rohit Yadav, Jitesh Pani, Ram Mehar Singh,\* Davender Singh, Kusum Kumari, Hitesh Borkar\* and Jitendra Gangwar\*

3287



### Identification of novel triazolylquinoxaline-based metal complexes supported by experimental and virtual screenings

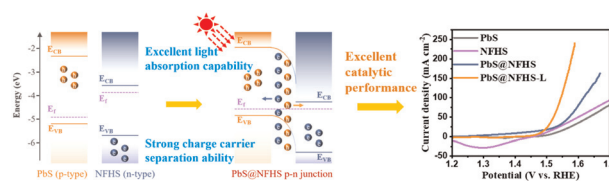
Laura Holzhauser, Vitalii Shekhovtsev, Cecilia Bruschi, Mathis Gunther, Olaf Fuhr, Patrick Hodapp, Claudia Bizzarri, Wolfgang Wenzel, Nicole Jung\* and Stefan Bräse\*



3296

### PbS@NiFe-LDH heterojunction: an efficient photo-assisted electrocatalyst for the OER

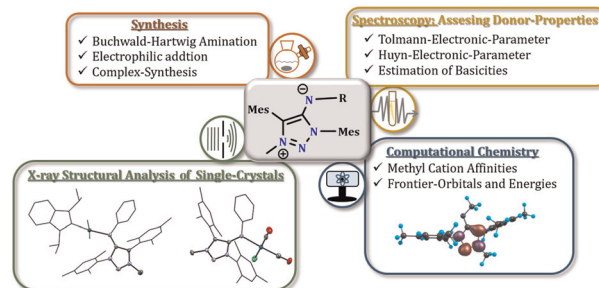
Shixiong Zhang, Yajun Ji,\* Pengcheng Zhang, Shulei Wang, Bin Zhang and Peng Zhou



3305

### Leveraging N-exo substituents to tune the donor/acceptor properties of mesoionic imines (MIs)

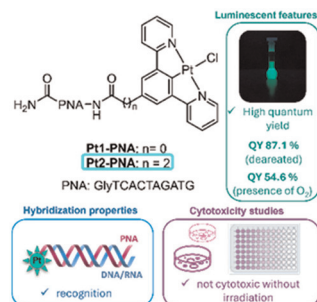
Richard Rudolf, Andrej Todorovski, Hartmut Schubert and Biprajit Sarkar\*



3314

### Highly phosphorescent N<sup>AC</sup>N platinum(II)-peptide nucleic acid conjugates: synthesis, photophysical studies and hybridization behaviour

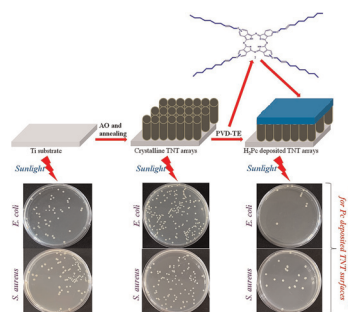
Rosa Maria Dell'Acqua, Francesco Fagnani, Monika Wojciechowska, Daniele Marinotto, Graziano Colombo, Isabella Dalle-Donne, Joanna Trylska, Silvia Cauteruccio\* and Alessia Colombo\*



3323

### Antibacterial and surface properties of post-light-activated metal-free phthalocyanine-deposited TiO<sub>2</sub> nanotube smart surfaces

Salih Durdu,\* Yasemin Caglar, Kadriye Ozcan and Ece Tugba Saka\*



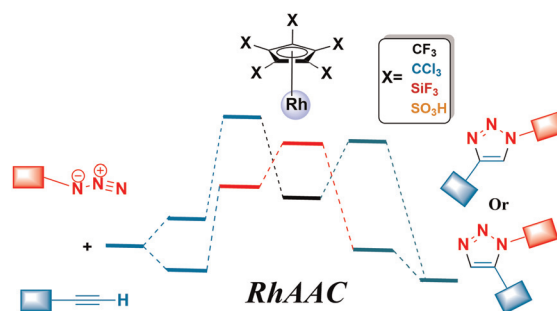


## PAPERS

3383

### Computational study on novel $RhCp^X$ ( $X = CF_3, SiF_3, CCl_3, SO_3H$ ) as promising catalysts in the [3 + 2] azide–alkyne cycloaddition reaction: insights into mechanistic pathways and reactivity

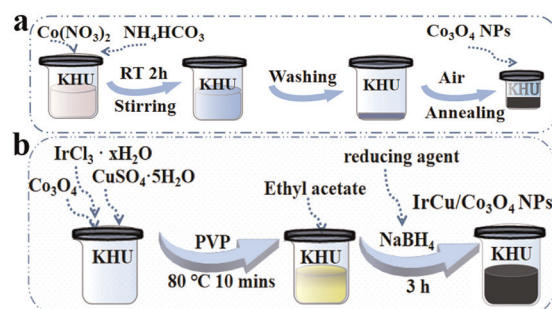
Ali A. Khairbek,\* Mohammad Abd-Al Hakim Badawi, Abdullah Y. Alzahrani, Ralph Puchta and Renjith Thomas\*



3393

### Synthesis of IrCu/Co<sub>3</sub>O<sub>4</sub> hybrid nanostructures and their enhanced catalytic properties toward oxygen evolution reaction under both acidic and alkaline conditions

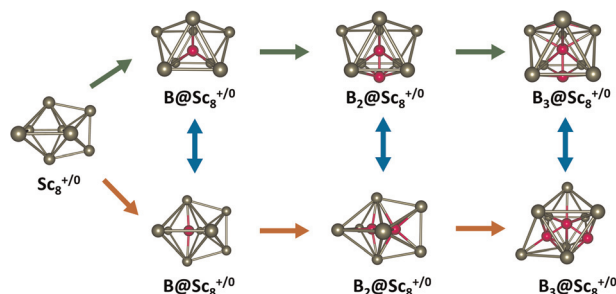
Xiaomei Xu and Taekyung Yu\*



3401

### Endohedral boron-doped scandium clusters $B_mSc_{n-m}^{+/0}$ ( $m = 2-3, n = 3-13$ ): triangular – linear rearrangement of the B<sub>3</sub> dopant

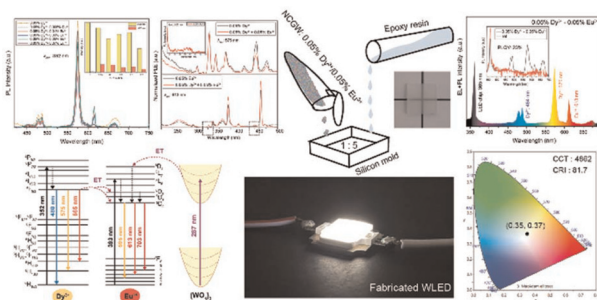
Bao-Ngan Nguyen-Ha, Nguyen Minh Tam, My Phuong Pham-Ho\* and Minh Tho Nguyen



3414

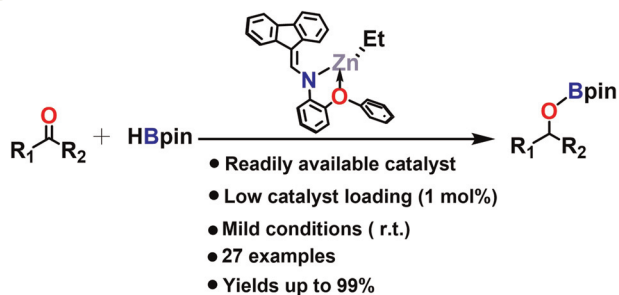
### Tunable photoluminescence and energy transfer in Dy<sup>3+</sup> and Eu<sup>3+</sup> co-doped NaCaGd(WO<sub>4</sub>)<sub>3</sub> phosphors for pc-WLED applications

Utku Ekim, Ikhlas Kachou, Tarak Kallel, Mohamed Dammak,\* Miray Çelikkbilek Ersundu\* and Ali Erçin Ersundu\*



## PAPERS

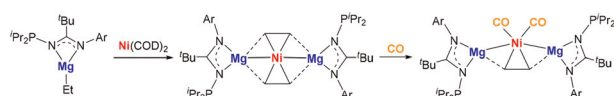
3427



### Alkyl zinc complexes derived from formylfluorenylimide ligands: synthesis, characterization and catalysis for hydroboration of aldehydes and ketones

Biao Wei, Zhibiao Qin, Hui Miao,\* Chaoqun Wang, Mengna Huang, Chenxu Liu, Cuibing Bai and Zheng Chen\*

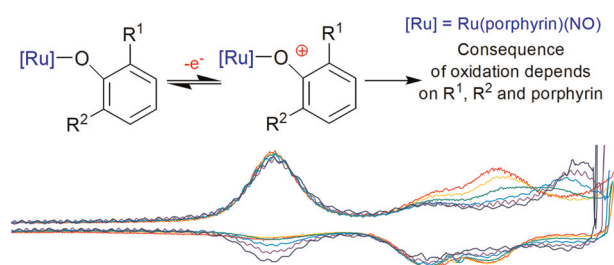
3437



### Synthesis and characterization of heterotrimetallic Mg–Ni–Mg complexes with amidinato ligands

Rongping Zhang, Yanping Cai and Xin Xu\*

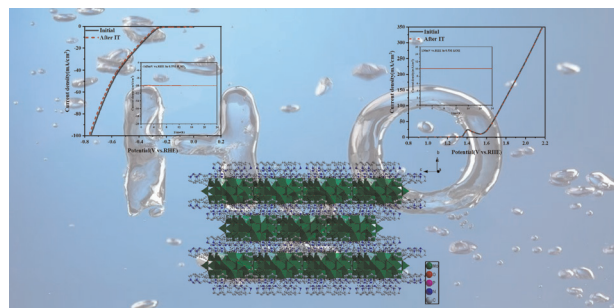
3444



### Electrochemical and spectroelectrochemical investigation of Ru(por)(NO)(OAr) derivatives (por = octaethylporphyrin, tetraanisolypporphyrin; Ar = Ph, C<sub>6</sub>H<sub>4</sub>-2-NHC(=O)CF<sub>3</sub>; C<sub>6</sub>H<sub>3</sub>-2,6-(NHC(=O)CF<sub>3</sub>)<sub>2</sub>)

Anthony R. Ramuglia, Jeremy R. Zink, Adam J. Warhausen, Erwin Abucayon, Nan Xu, Kailash Shrestha, George Richter-Addo\* and Michael J. Shaw\*

3456



### Pyridine polymer tubular structures connected with polyoxometalates as bifunctional electrocatalysts for water splitting

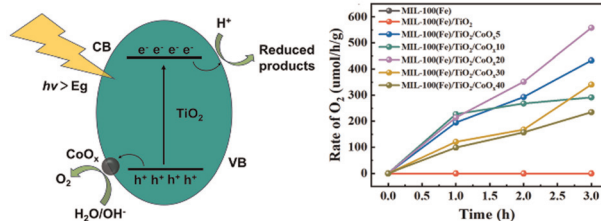
Jihua Wang, Hui Li, Lige Gong,\* Limin Dong, Yunhao Gu, Meijia Wang and BingHe Yang



3467

### TiO<sub>2</sub>/CoO<sub>x</sub> heterostructure decorated MIL-100(Fe) by atomic layer deposition for enhanced photocatalytic oxygen production

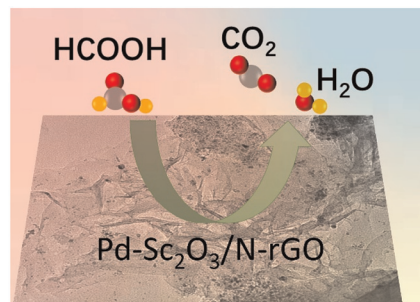
Wenhui Hu, Zhongxin Song, Lingna Sun, Lei Zhang, Qianling Zhang, Xiangzhong Ren and Yongliang Li\*



3478

### Rare-earth oxide promoted Pd electrocatalyst for formic acid oxidation

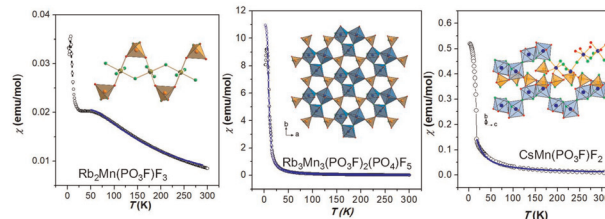
Lusheng Xiao, Danqi Jia, Chen Chen, Tingting Liu,\* Xiaofeng Zhang, Qiufeng Huang,\* Mohd Ubaidullah, Yuzhi Sun, Shengyun Huang\* and Zonghua Pu\*



3486

### Synthesis, structures, and magnetic properties of alkali metal manganese(III) fluorophosphates containing low-dimensional S = 2 spin structures

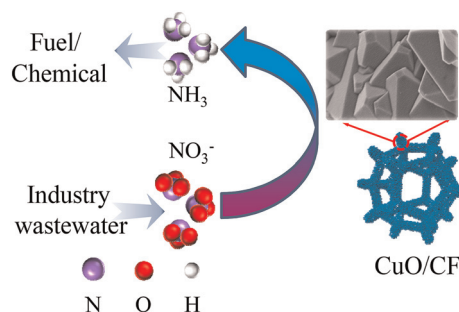
Xiedong Cheng, Feifan Li, Qingqing Huang, Laura C. J. Pereira, Rui Cui, Yaping Li and Minfeng Lü\*



3500

### In situ reconstructed prism-like CuO on copper foam assisted by fumaric acid for an enhanced electrochemical nitrate reduction reaction

Di Chen, Zhaobin Ye, Jie Xu, Shasha Ma and Jianyong Zhang\*



## CORRECTION

3509

**Correction: Structure-directing effect of terephthalate in bridging Zn(II)- and Cd(II)-based coordination polymers towards application in the detection of trace quantities of Pd<sup>2+</sup> in aqueous media and their electrical conductivities**

Koushik Saha, Basudeb Dutta, Pubali Das, Angeera Chandra, Arnab Samanta, Sudeep Ranjan Jana, Sudip Naskar, Rajat Saha, Partha Pratim Ray and Chittaranjan Sinha\*

