

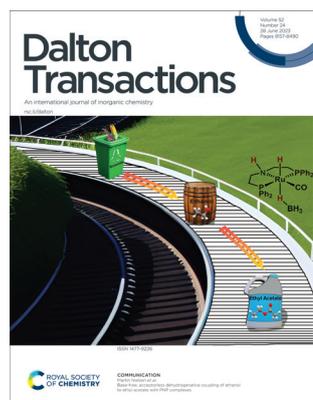
# Dalton Transactions

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**Inside cover**  
See Rui Wang, Qiaoling Kang,  
Dongyun Li *et al.*,  
pp. 8211–8221.

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## EDITORIAL

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Lin Xu,\* Cally J. E. Haynes\* and James E. M. Lewis\*

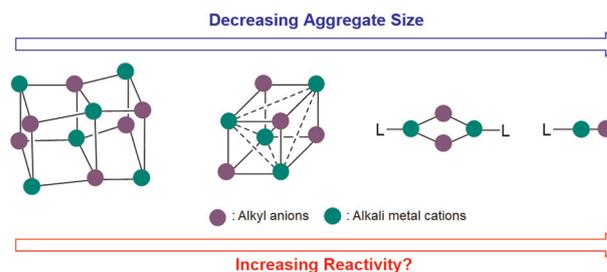


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Nathan Davison\* and Erli Lu\*



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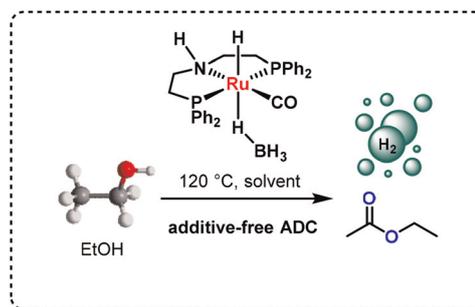


## COMMUNICATIONS

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**Base-free, acceptorless dehydrogenative coupling of ethanol to ethyl acetate with PNP complexes**

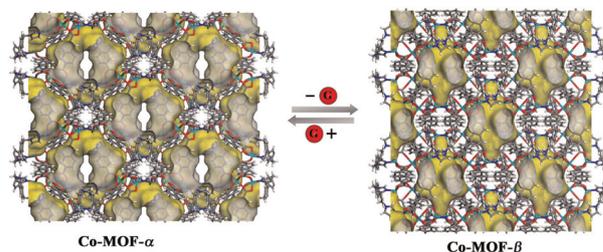
Zhenwei Ni, Rosa Padilla, Rajib Pramanick, Mike S. B. Jørgensen and Martin Nielsen\*



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**A 2D flexible cobalt-MOF: reversible solid-state structural transformation, two-step and gate-opening adsorption behaviours, and selective adsorption of C<sub>2</sub>H<sub>2</sub> over CO<sub>2</sub> and CH<sub>4</sub>**

Shan-Shan Wang, Yu-Jie Liang, Wei Guo, Yue Yin, Xiao-Yu Li, Quan-Qing Xu, Ai-Xin Zhu\* and Bo Huang\*



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**Upcycling rust and plastic waste into an Fe MOF for effective energy storage applications: transformation of trash to treasure**

Rakesh Deka, Diptangshu Datta Mal and Shaikh M. Mobin\*

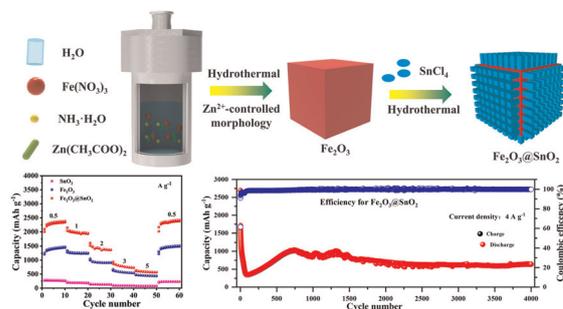


## PAPERS

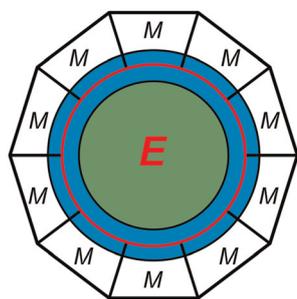
8211

**Epitaxial growth of hexahedral Fe<sub>2</sub>O<sub>3</sub>@SnO<sub>2</sub> nano-heterostructure for improved lithium-ion batteries**

Xiong Wang, Rui Wang,\* Qiaoling Kang,\* Feng Gao, Miaogen Chen, Yang Xu, Hongliang Ge and Dongyun Li\*



8222



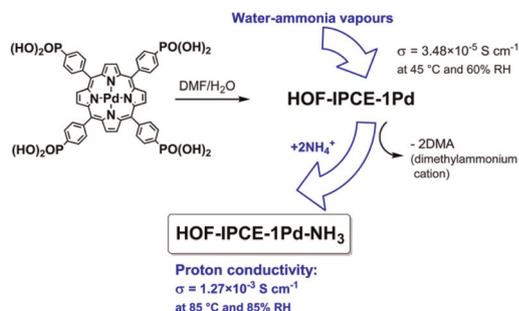
$$8 - N^{\text{eff}}(E)$$

Octet rule for  
polar-covalent  
multiatomic bonding

Polarity-extended 8 –  $N^{\text{eff}}$  rule for semiconducting main-group compounds with the TiNiSi-type of crystal structure

Riccardo Freccero,\* Yuri Grin and Frank R. Wagner\*

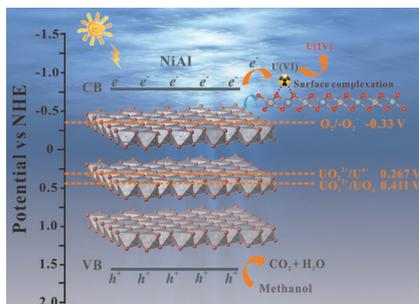
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An anionic porphyrinylphosphonate-based hydrogen-bonded organic framework: optimization of proton conductivity through the exchange of counterions

Ekaterina A. Zhigileva, Yulia Yu. Enakieva,\* Anna A. Sinelshchikova, Vladimir V. Chernyshev, Ivan N. Senchikhin, Konstantin A. Kovalenko, Irina A. Stenina, Andrey B. Yaroslavtsev, Yulia G. Gorbunova and Aslan Yu. Tsvadze

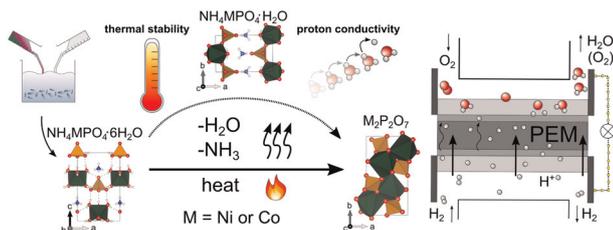
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Adsorption-photoreduction behaviors and mechanisms of layered double hydroxide loaded on uranium(vi) removal

Qian Ling, Peiling Kuang, Xin Zhong\* and Baowei Hu\*

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Thermally processed Ni- and Co-struvites as functional materials for proton conductivity

Stephanos Karafiludis,\* Biswajit Bhattacharya, Ana Guilherme Buzanich, Friedrich Fink, Ines Feldmann, Johan E. ten Elshof, Franziska Emmerling and Tomasz M. Stawski\*

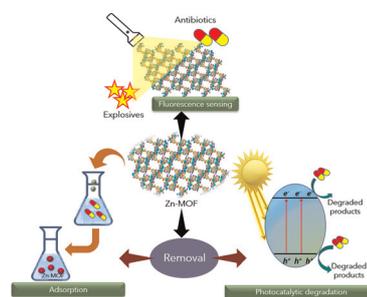


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### Amino decorated adenine based metal–organic framework for multi-faceted applications

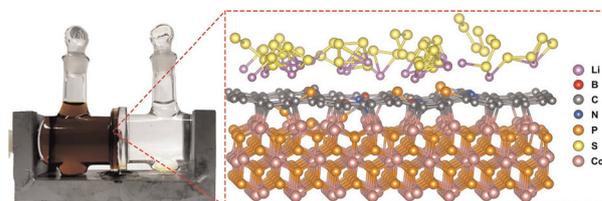
Alehegn Eskemech, Diksha Gambhir, Harpreet Kaur, Anirban Karmakar and Rik Rani Koner\*



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### Synthesis of CoP@B,N,P co-doped porous carbon by a supramolecular gel self-assembly method for lithium–sulfur battery separator modification

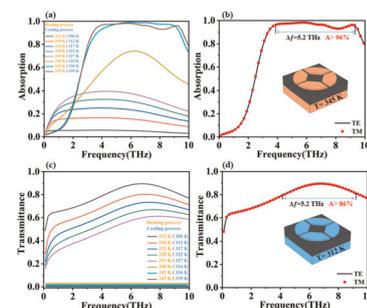
Zhenpu Shi, Yunqi Huang, Juhong Xu, Yudong Pang, Lan Wang, Wanli Zhao, Hongyun Yue, Zongxian Yang, Shuting Yang\* and Yanhong Yin\*



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### Active thermally tunable and highly sensitive terahertz smart windows based on the combination of a metamaterial and phase change material

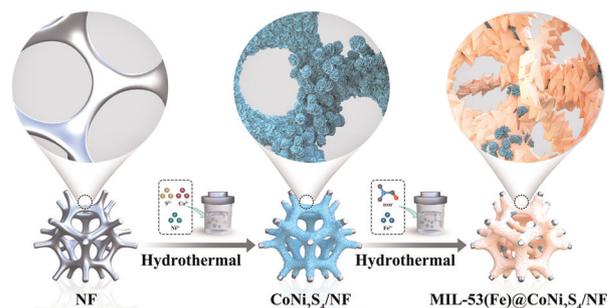
Zhipeng Zheng, Wenchao Zhao, Zao Yi,\* Liang Bian, Hua Yang, Shubo Cheng, Gongfa Li, Liangcai Zeng, Hailiang Li and Peipei Jiang



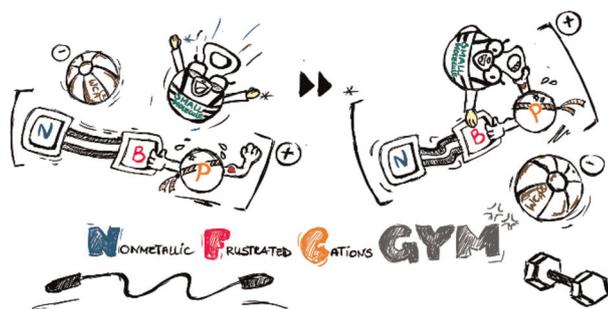
8302

### A hybrid of MIL-53(Fe) rhombus and conductive CoNi<sub>2</sub>S<sub>4</sub> nanosheets as a synergistic electrocatalyst for the oxygen evolution reaction

Weidong Liu, Lijun Wang and Yaqiong Gong\*



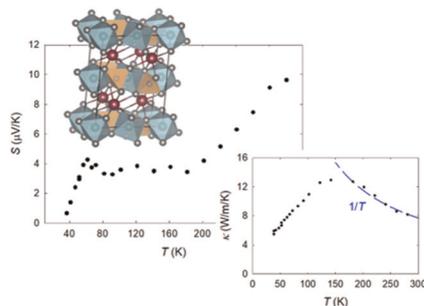
8311



### Application of nonmetallic frustrated cations in the activation of small molecules

Kinga Kaniewska-Laskowska,\* Marcin Czapla, Jarosław Chojnacki and Rafał Grubba\*

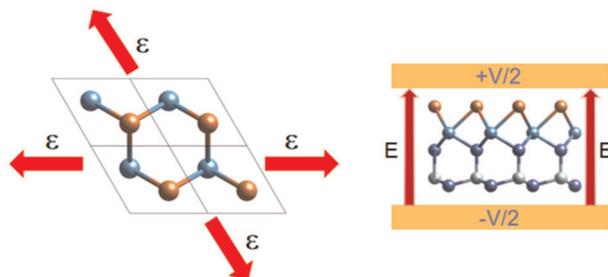
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### Structure, electrical and thermal properties of single-crystal BaCuGdTe<sub>3</sub>

Wilarachhige D. C. B. Gunatilleke, Winnie Wong-Ng, Teiyan Chang, Yu-Sheng Chen and George S. Nolas\*

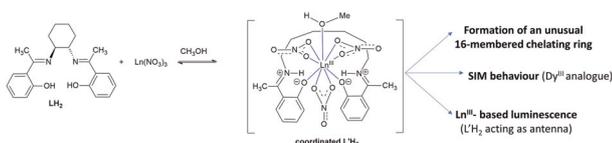
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### First principles prediction of two-dimensional Janus STiXY<sub>2</sub> (X = Si, Ge; Y = N, P, As) materials

Zhen Gao, Xin He, Wenzhong Li, Yao He\* and Kai Xiong

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### Interesting chemical and physical features of the products of the reactions between trivalent lanthanoids and a tetradentate Schiff base derived from cyclohexane-1,2-diamine

I. Mylonas-Margaritis,\* Z. G. Lada, A. A. Kitos, D. Maniaki, K. Skordi, A. J. Tasiopoulos, V. Bekiari, A. Escuer, J. Mayans,\* V. Nastopoulos,\* E. G. Bakalbassis,\* D. Papaioannou\* and S. P. Perlepes\*

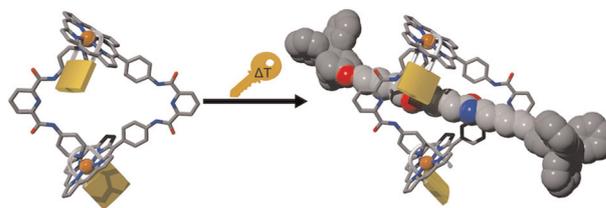


## PAPERS

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### A robust heterodimeric bis-Rh(III)–porphyrin macrocycle for the self-assembly of a kinetically stable [2]–rotaxane

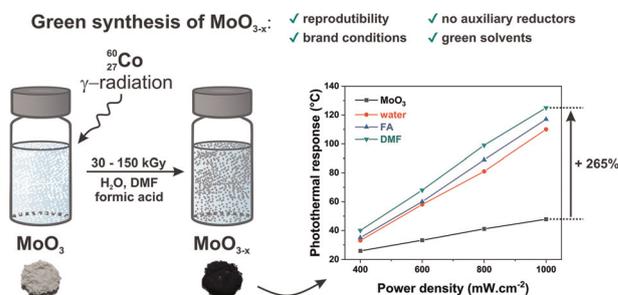
Naoyuki Hisano,\* Virginia Valderrey, Gemma Aragay and Pablo Ballester\*



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### Synthesis and photothermal performance of non-stoichiometric molybdenum oxide (MoO<sub>3-x</sub>) prepared by gamma radiation

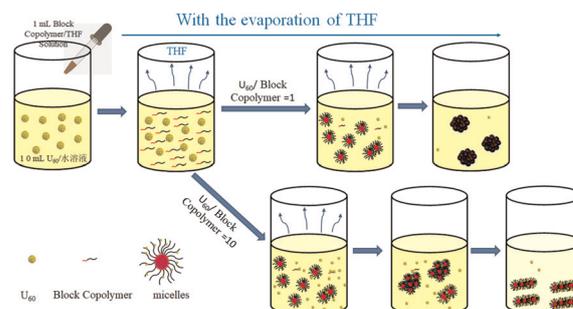
Diane C. A. Lima,\* Aldebarã F. Ferreira, Stterferson E. Silva, Severino Alves, Junior, Felipe L. N. Sousa and Walter M. de Azevedo\*



8361

### Hydrogen bonding and phase separation cooperatively guide the self-assembly of U<sub>60</sub> and the polymer to fabricate multiscale nanostructures

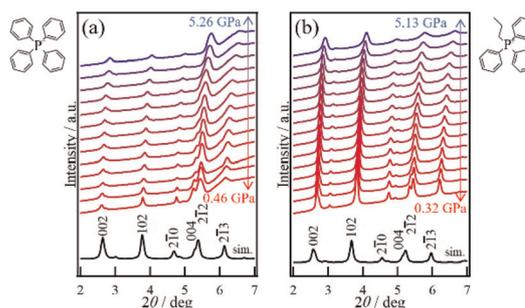
Jie Hu,\* Yingxuan Mei, Huifen Wu, Yan Zhao, Dongping Wu, Nan Ye, Peng Yi, Yu Yang and Minmeng Liao



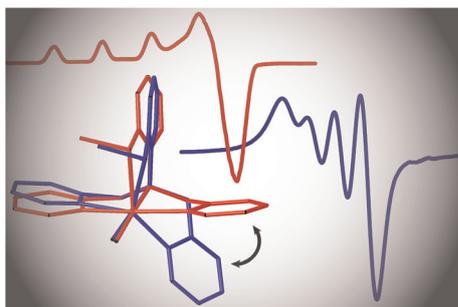
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### <sup>57</sup>Fe Mössbauer spectroscopy and high-pressure structural analysis for the mechanism of pressure-induced unique magnetic behaviour in (cation) [Fe<sup>II</sup>Fe<sup>III</sup>(dto)<sub>3</sub>] (cation = Ph<sub>4</sub>P and <sup>n</sup>PrPh<sub>3</sub>P; dto = 1,2-dithiooxalato)

Ryosuke Taniai, Tsubasa Endo, Takuya Kanetomo,\* Atsushi Okazawa, Hirokazu Kadobayashi, Saori I. Kawaguchi and Masaya Enomoto\*



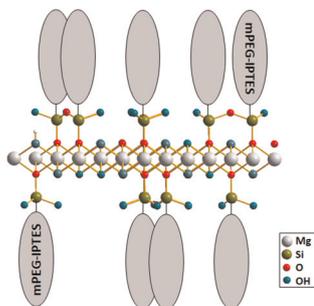
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### Conformational dynamics in a copper(II) coordination complex

Paul J. Griffin, Matthew J. Dake, Alesandro D. Remolina and Lisa Olshansky\*

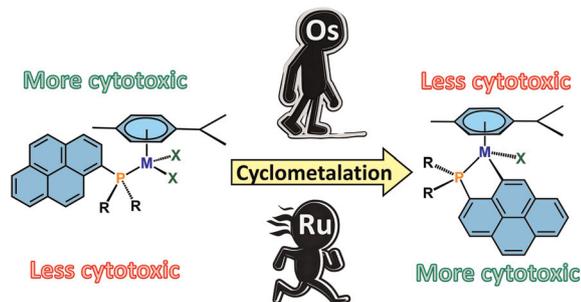
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### In situ preparation of compounds using silanized mPEG inspired by talc-like structures

Liva Dzene,\* Anne-Sophie Schuller, Frédéric Tidas, Séverinne Rigolet, Jocelyne Brendlé and Christelle Delaite

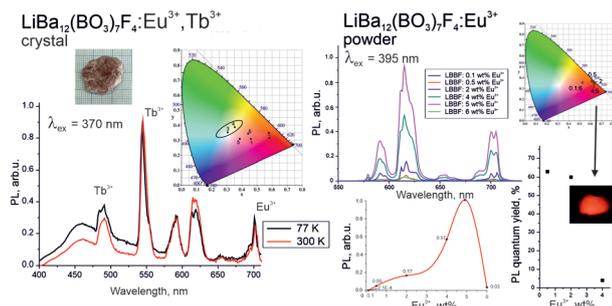
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### Cytotoxicity of osmium(II) and cycloosmated half-sandwich complexes from 1-pyrenyl-containing phosphane ligands

Dana Josa, David Aguilà, Pere Fontova, Vanessa Soto-Cerrato, Piedad Herrera-Ramírez, Laia Rafols, Arnald Grabulosa\* and Patrick Gamez\*

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### LiBa<sub>12</sub>(BO<sub>3</sub>)<sub>7</sub>F<sub>4</sub> (LBBF) crystals doped with Eu<sup>3+</sup>, Tb<sup>3+</sup>, Ce<sup>3+</sup>: structure and luminescence properties

Tatyana B. Bekker,\* Alexey A. Ryadun, Alexey V. Davydov and Sergey V. Rashchenko

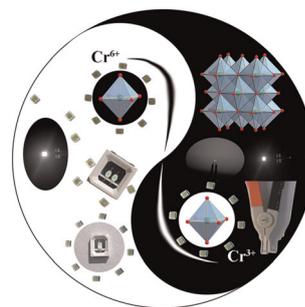


## PAPERS

8414

### A broadband near-infrared Cr<sup>3+</sup>-doped phosphor applied to near-infrared light-emitting diodes: enhanced luminescence and thermal stability by annealing

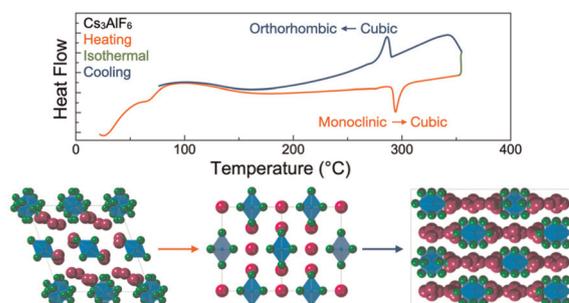
Tao Tan, Ran Pang,\* Shangwei Wang, Haiyan Wu, Jiutian Wang, Su Zhang, Chengyu Li\* and Hongjie Zhang



8425

### Polymorphism in A<sub>3</sub>MF<sub>6</sub> (A = Rb, Cs; M = Al, Ga) grown using mixed halide fluxes

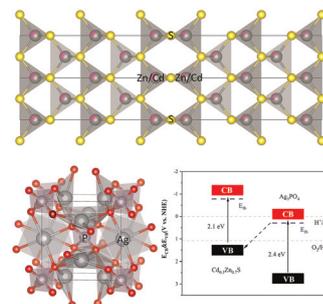
Gregory Morrison, Lakshani W. Masachchi, Hunter B. Tisdale, Tiejian Chang, Virginia G. Jones, K. Pilar Zamorano, Logan S. Breton, Mark D. Smith, Yu-Sheng Chen and Hans-Conrad zur Loye\*



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### Defective Cd<sub>0.3</sub>Zn<sub>0.7</sub>S twin crystal/Ag<sub>3</sub>PO<sub>4</sub> Z-scheme heterojunctions toward optimized visible-light-driven photocatalytic hydrogen evolution

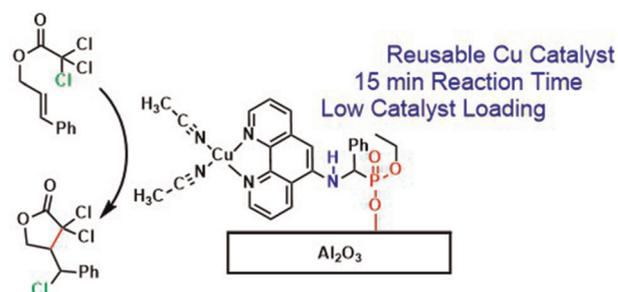
Jie Chen, Haitao Yu,\* Ying Xie,\* Zhenzi Li and Wei Zhou\*



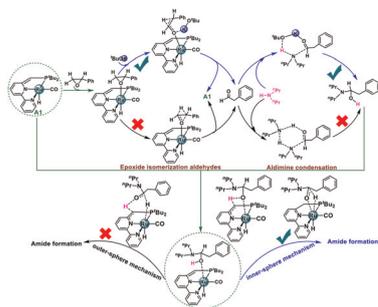
8442

### Surface immobilized Cu-1,10-phenanthroline complexes with α-aminophosphonate groups in the 5-position as heterogenous catalysts for efficient atom-transfer radical cyclizations

Sarah E. Maier, Osman Bunjaku, Elif Kaya, Michael Dyballa, Wolfgang Frey and Deven P. Estes\*



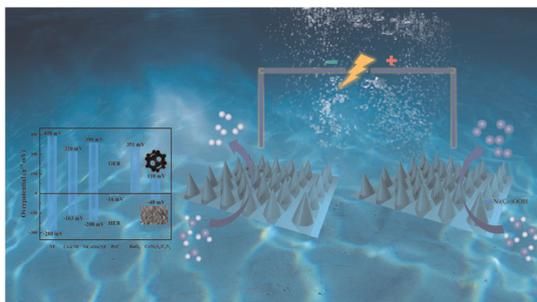
8449



### Mechanistic insights into amide formation from aryl epoxides and amines catalyzed by ruthenium pincer complexes: a DFT study

Jing Wen, Zhewei Li, Yanhui Tang, Min Pu\* and Ming Lei\*

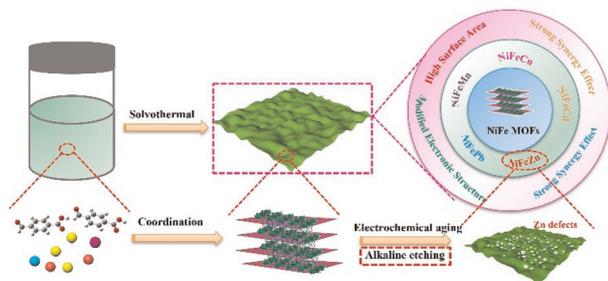
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### Tentacle-like core–shell $\text{CoNi}_2\text{S}_4/\text{C}_3\text{N}_4$ bifunctional electrocatalysts for efficient overall alkaline water splitting

Qingfei Li, Nan Li,\* Mianmian Wu, Guifang Sun, Wenjing Shen, Minghao Shi and Jiangquan Ma\*

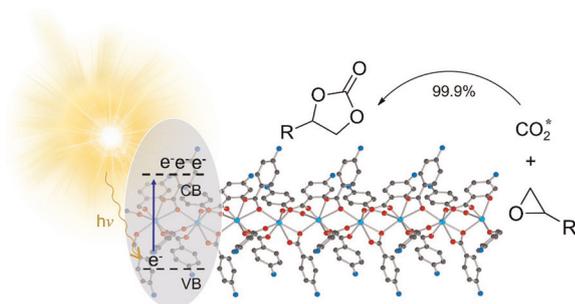
8466



### Engineering defective trimetallic metal–organic framework nanosheets for advanced water oxidation electrocatalysis

Hui Xu, Cheng Wang, Guangyu He\* and Haiqun Chen\*

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### Lanthanide(III) (Er/Ho) coordination polymers for a photocatalytic $\text{CO}_2$ cycloaddition reaction

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## CORRECTION

8488

**Correction: An insight into the optical properties of a sub nanosize glutathione stabilized gold cluster**

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