

## IN THIS ISSUE

ISSN 1144–0546 CODEN NJCHES 48(3) 993–1446 (2024)



### Cover

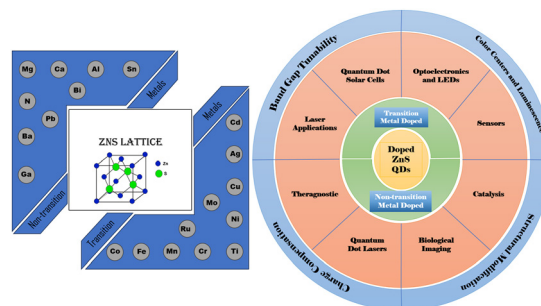
See C. L. Teske,  
H. Terraschke  
et al., pp. 1086–1095.  
Image reproduced  
by permission  
of Jonas Ströh and  
Huayna Terraschke  
from *New J. Chem.*,  
2024, **48**, 1086.

## PERSPECTIVES

1009

### Cation exchange doping by transition and non-transition metals: embracing luminescence for band gap tunability in a ZnS lattice

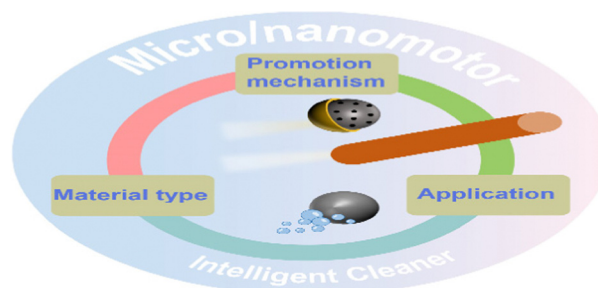
Tejasvi Pandey, Abhishek Singh, Rajinder Singh Kaundal and Vivek Pandey\*



1036

### Application of micro/nanomotors in environmental remediation

Dan Jing, Ziyi Li, Wennan Yan, Ji Zhang and Yingshu Guo\*



# Royal Society of Chemistry approved training courses

Explore your options.  
Develop your skills.  
Discover learning  
that suits you.

**Courses in the classroom,  
the lab, or online**

Find something for every  
stage of your professional  
development. Search our  
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit [rsc.li/cpd-training](https://rsc.li/cpd-training)

**SAVE  
10%**

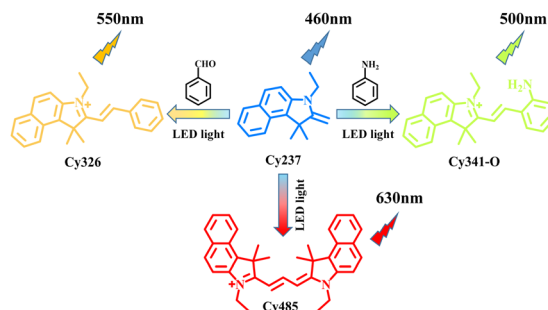


## COMMUNICATIONS

1057

**Discrimination of aniline and benzaldehyde assisted with Fisher's base**

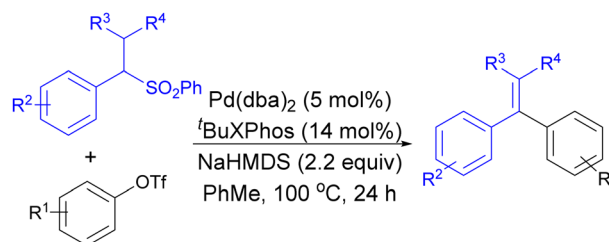
Zhiyong Zhang, Zhihao Lu,\* Xiaocong Zou, Xiunan Xie, Jinmao You and Zan Li\*



1062

**Palladium-catalyzed  $\alpha$ -arylation/ $\beta$ -elimination of sulfones**

Mengzhao Yu, Luqiong Duan, Xinwei Zhang, Qian Zhang, Hongzhen Wang and Xiaolei Huang\*



1067

**Towards improved comprehensive energetic properties by skeleton modification**

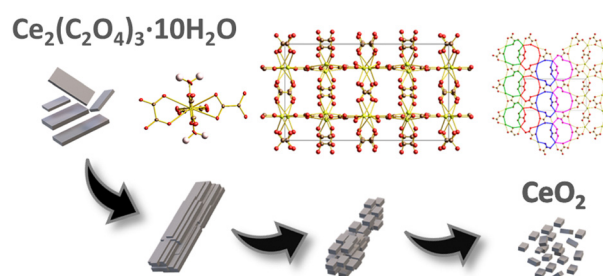
Jingwen Li, Xun Zhang, Yaxi Wang, Dongshuai Su, Siping Pang and Chunlin He\*



1071

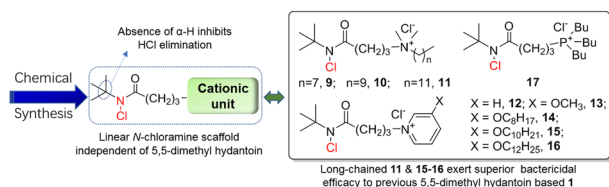
**Hydrothermal conversion of cerium oxalate to  $CeO_2$ : a parade of oxalate and water coordination modes**

Navid Assi, Christophe Lahoud, Petr Brázda, Dominika Zákutná, Daniel N. Rainer, Jakub Hraniček, Jan Rohlíček and Václav Tyrpekl\*



## COMMUNICATIONS

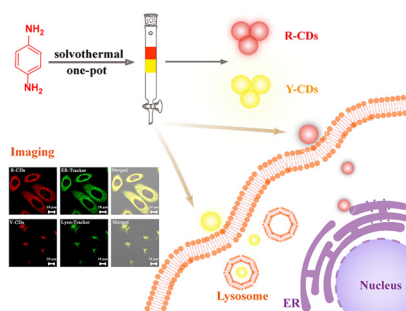
1076



### New cationic linear *N*-chloramines based on *N*-*t*-butylamide: chemical synthesis and antibacterial application

Lingdong Li,\* Songwei Zhang, Zhongtian Du, Hande Wang and Hao Zhou

1081

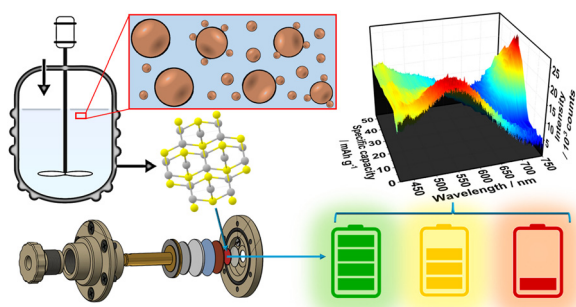


### One-pot preparation of long-wavelength carbon dots with targeting ability toward different organelles

Xiao-Li Tian, Xi He, Ping Chen, Lan Zhang, Meng-Wei Hei, Xiao-Qi Yu and Ji Zhang\*

## PAPERS

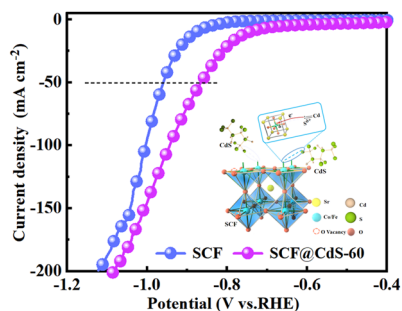
1086



### $\alpha$ -Ag<sub>2</sub>S nanoparticles: low-temperature syntheses, crystallisation pathway, and first *operando* luminescence measurements for sodium-ion battery applications

J. Ströh, L. Ohrt, A. Harder, Y. Collette, L. Liers, E. Teotonio, D. Novikov, A. Khadiev, C. L. Teske\* and H. Terraschke\*

1096



### Efficient perovskite oxide@CdS composite catalysts for hydrogen production from oilfield wastewater electrolysis

Jianzhao Cao, Rui Li, Ying Qi, Zhaoxiang Qi, Junzi Huang and Yahong Xie\*

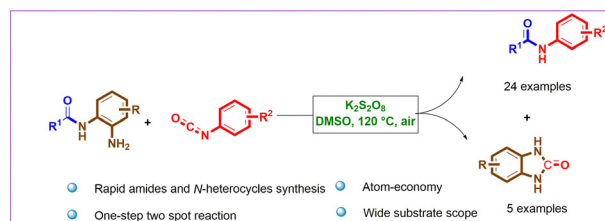


## PAPERS

1103

PhNCO-enabled synthesis of secondary amides from *N*-(2-aminophenyl)benzamides

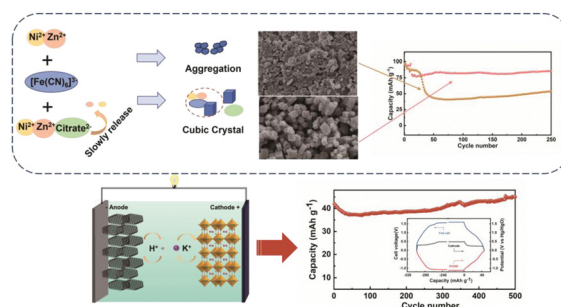
Karthick Govindan, Nian-Qi Chen, Alageswaran Jayaram and Wei-Yu Lin\*



1108

Potassium energy storage behavior of nickel–zinc co-doped Prussian blue analogs formed by a chelating-agent-assisted route and its application in a  $K^+$ -proton hybrid-ion aqueous alkaline battery

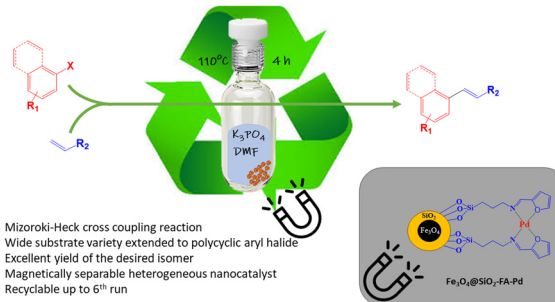
Ruiqing Hua, Caiyun Xu, Dian Lin, Deyu Qu,\* Xi Li, Ruiming Zhang, Zhizhong Xie,\* Haolin Tang, Junsheng Li and Dan Liu\*



1121

## Furaldehyde-based magnetic supported palladium nanoparticles as an efficient heterogeneous catalyst for Mizoroki–Heck cross-coupling reaction

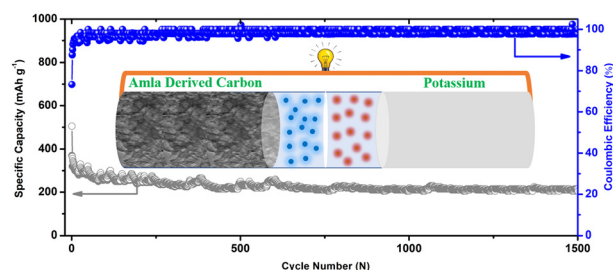
Sumanth Hegde, Aatika Nizam\* and Ajesh Vijayan



1130

A high performance and long-cycling bi-functional carbon electrode derived from *Phyllanthus emblica* (amla) for potassium ion batteries and supercapacitors

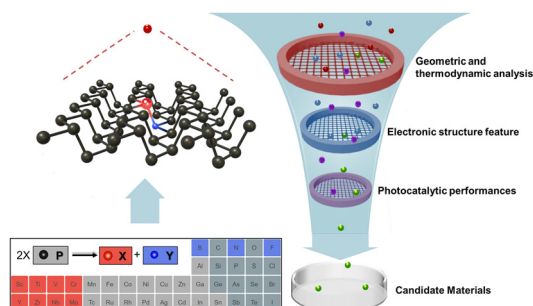
Chandra Sekhar Bongu,\* Arthi Gopalakrishnan and Chandra Shekhar Sharma





## PAPERS

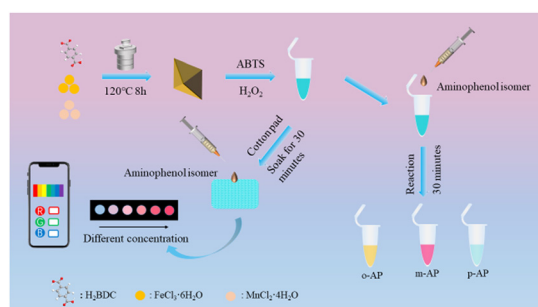
1141



### Activating black phosphorene's inert basal plane via nonprecious metal–nonmetal co-doping for visible-light-driven photocatalytic H<sub>2</sub> evolution

Luteng Luo, Weiting Cui, Hang Xue, Sunzai Ke, Xuhui Yang,\* Min-Quan Yang and Qingrong Qian\*

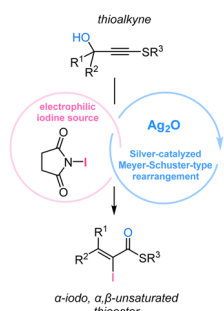
1152



### Highly selective detection and differentiation of aminophenol isomers based on a bimetallic metal–organic-framework with peroxidase-like activity

Yujie Zhang, Yingjiang Wang, Zhaohui Li, Lingbo Qu and Lanlan Yu\*

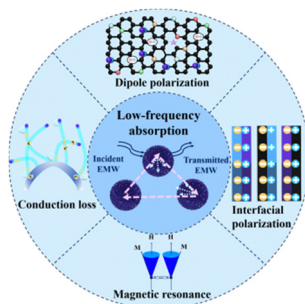
1164



### Silver(i)-catalyzed stereoselective Meyer–Schuster-type rearrangement: synthesis of densely substituted $\alpha$ -iodo $\alpha,\beta$ -unsaturated thioesters

José L. Lopes, Lucas L. Baldassari and Diogo S. Lüdtké\*

1172



### Tailored ternary hetero-interfaces with *in situ* formed CNTs for effective electromagnetic coupling at low/mid-frequency

Jing Chen, Hong-Han Wang, Qing-Da An, Zuo-Yi Xiao, Xiao-Ling Dong,\* Kai-Ruo Zhu and Shang-Ru Zhai\*

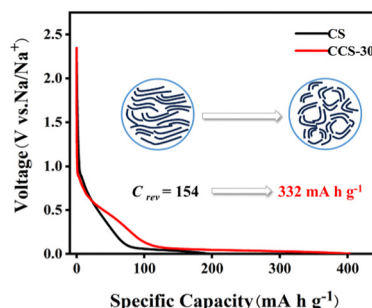


## PAPERS

1182

### Pre-crosslinking enables a promising cyclodextrin-derived carbon anode with large plateau capacity for sodium ion batteries

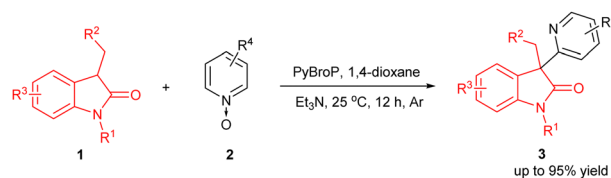
Haifeng Ding, Liang Yue, Yonghang Liu, Yi Zhang, Qing Zhao, Peipei Zhi, Yuruo Qi\* and Maowen Xu\*



1192

### PyBroP-mediated nucleophilic addition of oxindoles with pyridine N-oxides to access 3-pyridyl-3,3-disubstituted oxindoles

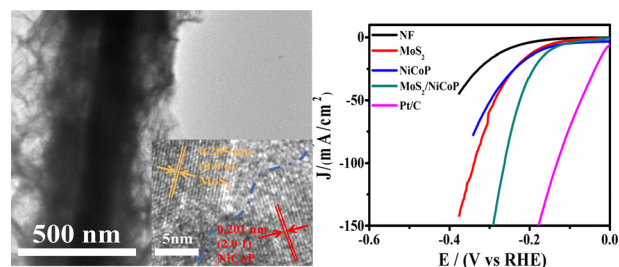
Fuzhong Han,\* Wenjia Xiao, Lina Jia and Xiangping Hu\*



1200

### Heterogeneous electrocatalysts of MoS<sub>2</sub>/NiCoP for highly stable hydrogen evolution

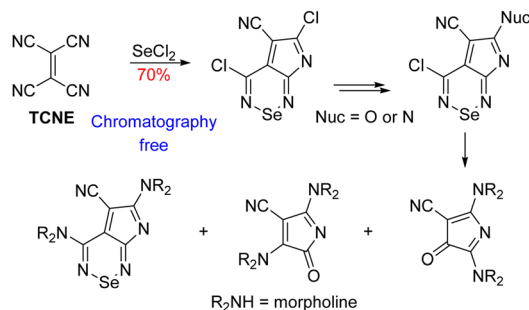
Minmin Wang, Hao Xu, Li Zhou, Tongming Sun\* and Yanfeng Tang\*



1206

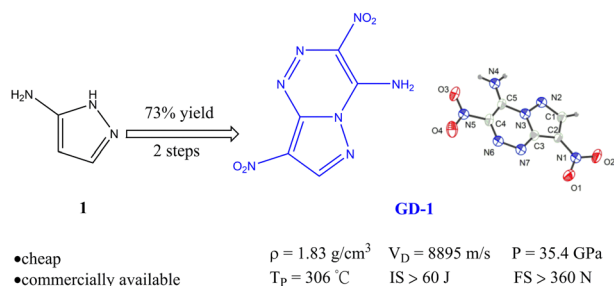
### Reaction of tetracyanoethylene with diselenium dichloride: a route to pyrrolo[2,3-c][1,2,6]selenadiazines

Cory Laurent, Andreas Kourtellis and Panayiotis A. Koutentis\*



## PAPERS

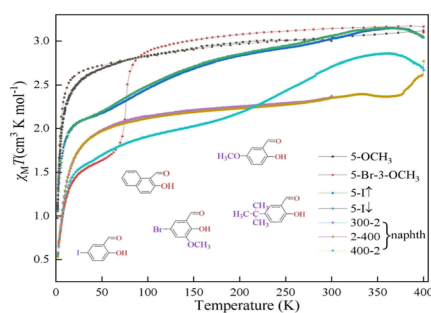
1212



### Concise synthesis of a fused energetic pyrazolotriazine with good performance

Haichuan Shi, Yuqing Wang, Xinyu Wang, Xiaotian Zhang, Ming Huang, Haijun Yang\* and Zhenghang Luo\*

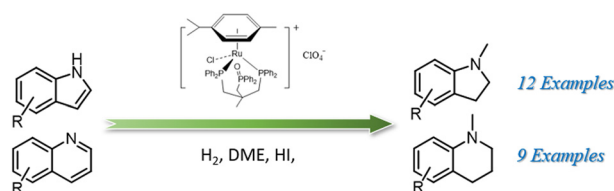
1217



### Probing the effect of substituents and solvent on [Mn(R-sal-N-1,5,8,12)]BPh<sub>4</sub>: a systematic investigation of SCO properties

Chun-Yan Qin, Sen-Yu Zhang, Hao-Ze Zhang, Hua-wei Zhou, Sheng-Ze Zhao, Yong-Hua Li,\* Chao Tang\* and Shi Wang\*

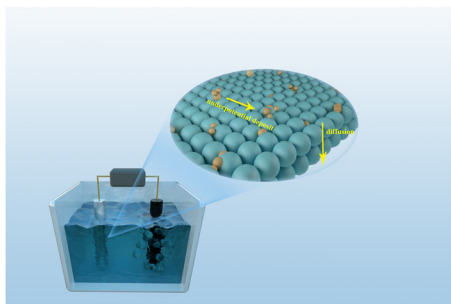
1227



### Ruthenium/HI-catalyzed direct hydromethylation of indoles and quinolines in DME

Pengxiang Gao, Zheng Wang, Ruotong Chang, Wei Li, Ziwei Zhao, Dexin Fu and Qingbin Liu\*

1233



### Electrochemical and kinetic studies on the electrolytic extraction of Gd on Bi electrode in LiCl–KCl melt

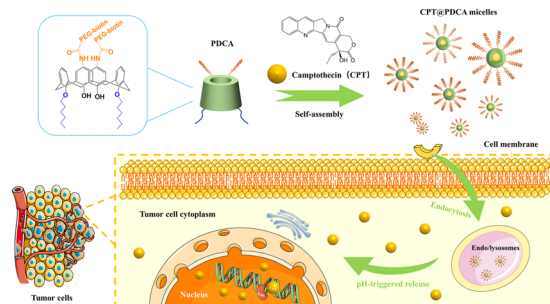
Li Ding, Xin Kong, Yan Gong, Shanxin Yang, Yongde Yan,\* Yuan Deng,\* Yun Xue, Kai Zhu,\* Fuqiu Ma and Wei Liu





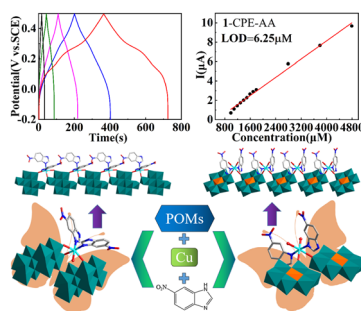
Han-yuan Zheng, Yu-dun Liu, Yu-lei Zhang, Qing-hua Shi,  
Xue-li Hou and Lin An\*

Han-yuan Zheng, Yu-dun Liu, Yu-lei Zhang, Qing-hua Shi,  
Xue-li Hou and Lin An\*



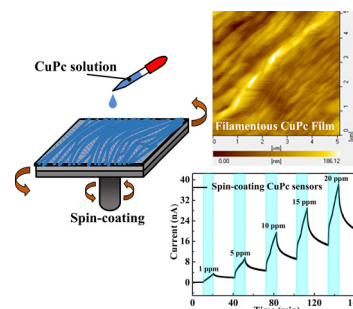
## Two new 6-nitrobenzimidazole ligand-modified polymolybdate-based metal–organic complexes with excellent capacitive and electrocatalytic performances

Ju-Ju Liang, Yu-Chen Zhang, Zhi-Han Chang,  
Yong-Zhen Chen, Ke-Ke Chen, Jun-Jun Lu and  
Xiu-Li Wang\*



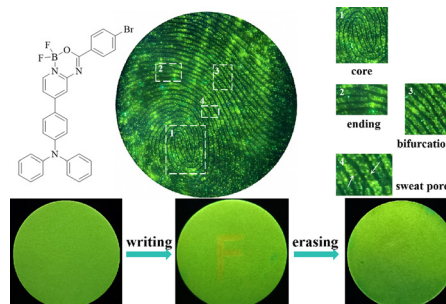
# Solution-processed filamentous copper phthalocyanine films for enhanced NO<sub>2</sub> gas sensing at room temperature

Ziyang Cui, Lu Wang,\* Yangyang Zhu, Yiqun Zhang and  
Li Juan Wang\*

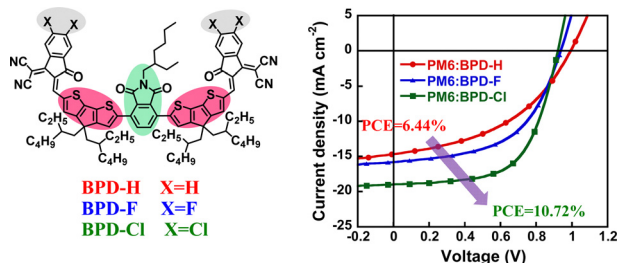


# A difluoroboron compound with latent fingerprint detection and inkless writing based on aggregation-induced emission enhancement and mechanofluorochromic behavior

Shufang Yang, Jiazhuang Tian, Bangcui Zhang,  
Yanhua Yang,\* Xiangguang Li,\* Shulin Gao,\*  
Lin Shao and Fumin Li\*



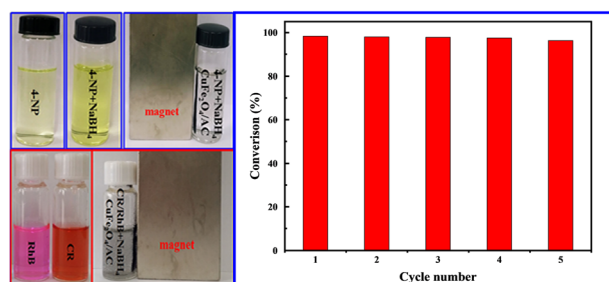
1272



### Phthalimide-based unfused-ring non-fullerene acceptors for constructing efficient organic solar cells with high open-circuit voltage

Baitian He,\* Luting Tang, Xiuhua Huang, Jinming Zhang, Manjun Xiao,\* Guiting Chen\* and Chuanbo Dai

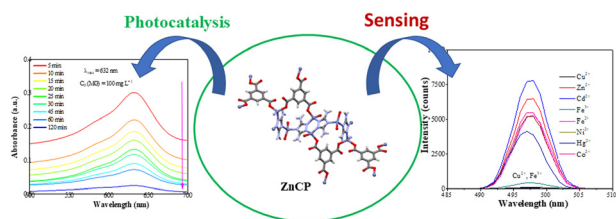
1280



### Copper-decorated iron oxide nanoparticles highly dispersed on coal-based activated carbons: a recoverable catalyst for the reduction of 4-nitrophenol, Congo red, and Rhodamine B

Biao Zhang, Yakun Tang, Shasha Gao, Shan Wang and Lang Liu\*

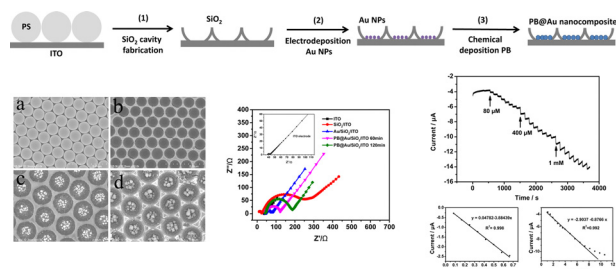
1287



### Multifaceted properties of an engineered three-dimensional Zn(II)–metal–organic coordination polymer: synthesis, crystal structure, efficient photocatalytic degradation of an organic dye and selective luminescent sensing

Rais Ahmad Khan,\* Amal AlFawaz, Imran Hasan, Nouf A. AlMuryyi, Afnan A. Alhamed, Sameen Laeeq, Sandeep Dey, Anup Paul and Ali Alsalmeh\*

1300



### Prussian blue@Au nanoparticles/SiO<sub>2</sub> cavity/ITO electrodes: application as a hydrogen peroxide sensor

Na Li,\* Hongying Zhou, Yinghong Liu, Xianjiu Yu, Lei Cao, Youjie Xu, Luxin Xi, Gui Zhao and Xinxin Ban\*



Nguyen Khoa Hien, Mai Van Bay, Quan V. Vo,  
Ngo Duy Y., Duong Tuan Quang\* and Pham Cam Nam\*

Nguyen Khoa Hien, Mai Van Bay, Quan V. Vo,  
Ngo Duy Y., Duong Tuan Quang\* and Pham Cam Nam\*



Shaikh Samser, Priyabrata Biswal, Omkar Mohapatra,  
Sanu Siyad Pullarat, Sushanta Kumar Meher and  
Krishnan Venkatasubbaiah\*

Shaikh Samser, Priyabrata Biswal, Omkar Mohapatra,  
Sanu Siyad Pullarat, Sushanta Kumar Meher and  
Krishnan Venkatasubbaiah\*



Nandini R., Thrilokraj R., Umesh A. Kshirsagar,  
Rajeev V. Hegde, Arnab Ghosh, Siddappa A. Patil,  
Jan Grzegorz Malecki and Ramesh B. Dateer\*

Nandini R., Thrilokraj R., Umesh A. Kshirsagar,  
Rajeev V. Hegde, Arnab Ghosh, Siddappa A. Patil,  
Jan Grzegorz Malecki and Ramesh B. Dateer\*



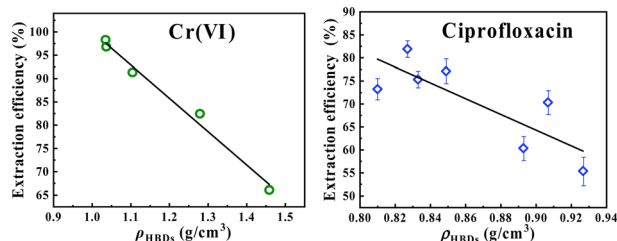
Kseniya V. Belyaeva, Lina P. Nikitina, Ludmila A. Oparina,  
Veronika S. Saliy, Denis N. Tomilin, Anton V. Kuzmin,  
Andrei V. Afonin and Boris A. Trofimov\*

Kseniya V. Belyaeva, Lina P. Nikitina, Ludmila A. Oparina,  
Veronika S. Saliy, Denis N. Tomilin, Anton V. Kuzmin,  
Andrei V. Afonin and Boris A. Trofimov\*



## PAPERS

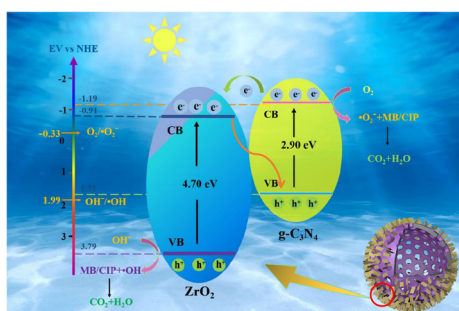
1350



### A density model for screening hydrogen bond donors to improve the efficiency of hydrophobic deep eutectic solvents

Chengjin Xu and Hongfei Wang\*

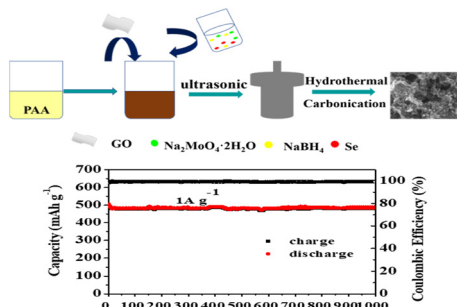
1359



### Polymethylacrylic acid-induced fabrication of hollow hZrO<sub>2</sub>/g-C<sub>3</sub>N<sub>4</sub> composite photocatalysts: study on solar photocatalytic performance and mechanism insight

Weilong Zhang, Xian Li, Huan Cheng, Jie Yang and Jumei Li\*

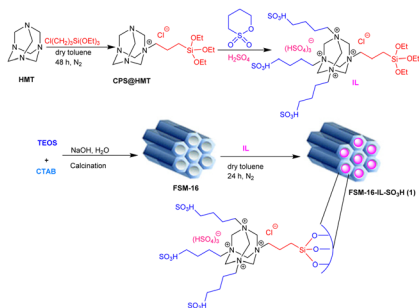
1372



### 1T–2H MoSe<sub>2</sub>/N-doped rGO composites as anodes for high performance lithium-ion batteries

Peng Sun, Menglu Zhang, Yue Liu, Jiahua Zhao, Jiawei Yang, Yufeng Wang, Yongfei Wang\* and Zhiqiang Zhang\*

1381



### A novel ionic liquid immobilized on FSM-16: a novel recoverable nanocatalyst for the synthesis of biscoumarin derivatives

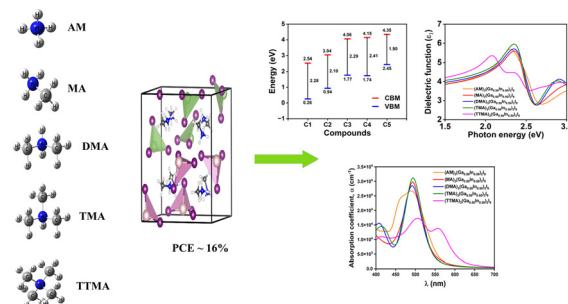
Azar Jahanbakhshi, Sanaz Eskandari and Mahnaz Farahi\*



1390

## The feasibility of mixed Ga and In hybrid halide perovskites as alternatives to Pb halide perovskites

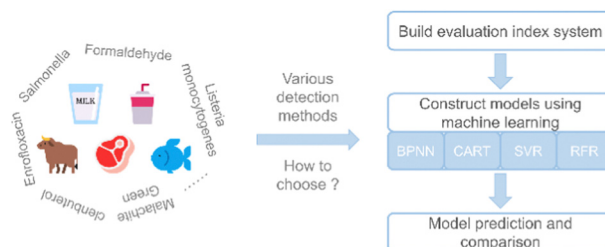
Tanmoy Kalita, Tridip Chutia, Ranjit Tumung and Dhruba Jyoti Kalita\*



1399

## Evaluation of methods for the detection of hazardous substances in food based on machine learning

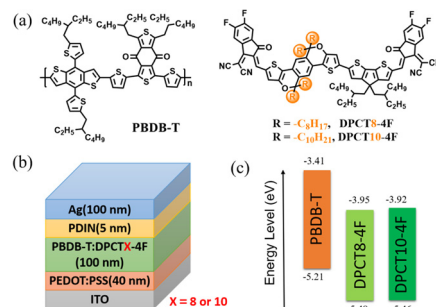
Long-yu Zhu, Lijuan Yan, Fang Zhao, Xuwen Guo,\* Dunming Xu,\* Jingzhang Lv, Lin Ding, Na Niu, Jun-qin Qiao, Shumian Ma, Xindi Huang, Huiling Liu and Hong-zhen Lian\*



1407

## Enhancing the performance of non-fullerene organic solar cells through side-chain engineering of asymmetrical non-fused-ring electron acceptors

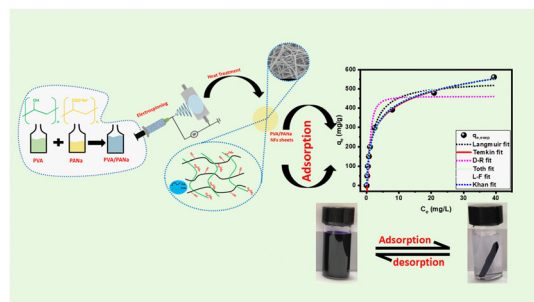
Jun Yang, Yingyi Lu, Zhongxin Zhou, Shiyue Zhang, Zhonglian Wu,\* Shujing Jin, Yongtao Zhao, Weiguo Zhu\* and Yu Liu\*



1414

## Highly efficient and reusable polymeric nanofibers for cationic dye removal: isotherm, kinetics and thermodynamic study

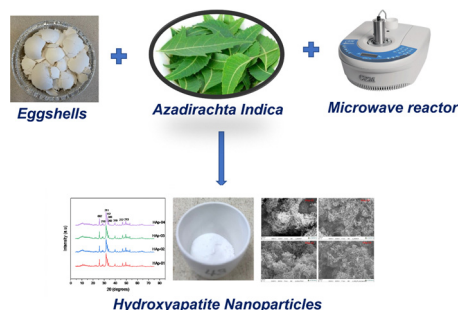
Badr M. Thamer\* and Faiz A. Al-aizari





## PAPERS

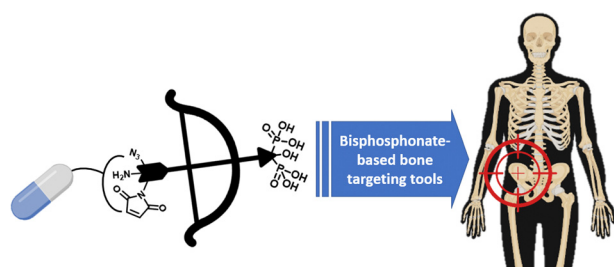
1424



**Facile synthesis of hydroxyapatite nanoparticles from eggshell biowaste using *Azadirachta indica* extract as a green template**

Punita Upadhyay and Aman Ullah\*

1436



**Synthesis of new alendronate analogs for bone-targeted drug delivery strategies**

Nicolas Guedeney,\* Julia Deschamp, Thibaut Legigan, Maëlle Monteil, Evelyne Migianu-Griffoni\* and Marc Lecouvey\*

## CORRECTIONS

1443

**Correction: NaCMC-decorated ZnO nanocomposite polymer membranes for the separation of reactive dyes from textile water**

R. Robin, Vinoth Kumar Raja, R. Sathish Kumar, G. Arthanareeswaran\* and Wirach Taweepreda\*

1444

**Correction: Novel (*E*)-3-(1-substituted-1*H*-indazol-5-yl)-*N*-hydroxypropenamides as histone deacetylase inhibitors: design, synthesis and structure–activity relationships**

Minh Sang Doan, Eun Jae Park, Duong Tien Anh, Do Thi Mai Dung, Le Quang-Bao, Pham-The Hai, Dao Thi Kim Oanh, Truong Thanh Tung, Ik Ho Na, Joo Hee Kwon, Jong Soon Kang, Sang-Bae Han,\* Dinh Thi Thanh Hai and Nguyen-Hai Nam\*

