

## IN THIS ISSUE

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### Cover

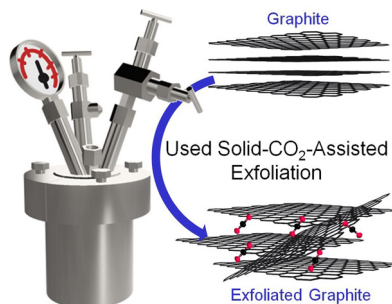
See Janardhan Banothu, K. Fabitha, Anoop Kallingal *et al.*, pp. 8038–8054. Image reproduced by permission of Janardhan Banothu from *New J. Chem.*, 2024, **48**, 8038.

## COMMUNICATIONS

8030

### Deploying used solid carbon dioxide to assist graphite exfoliation

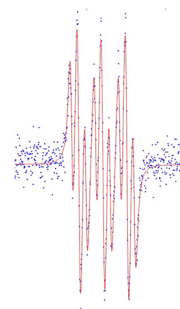
Nicky Kumar Lamba, Pawan Choudhary, Jaidev Kaushik, Kumud Malika Tripathi, Shyam Kumar Choudhary\* and Sumit Kumar Sonkar\*



8034

### A simple reaction pathway allowing easy EPR characterization of N-oxyl radicals

Jean-Pierre Costes



# RSC Applied Interfaces

GOLD  
OPEN  
ACCESS

## Interfacial and surface research with an applied focus

### Interdisciplinary and open access



[rsc.li/RSCApplInter](https://rsc.li/RSCApplInter)

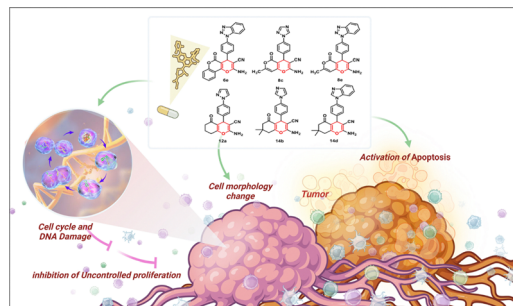
Fundamental questions  
Elemental answers

## PAPERS

8038

### Novel fused pyran derivatives induce apoptosis and target cell cycle progression in anticancer efficacy against multiple cell lines

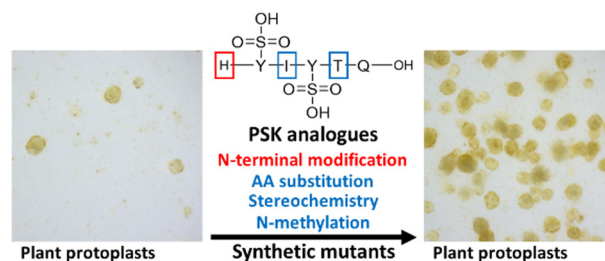
K. Fabitha, Anoop Kallingal, Natalia Maciejewska, C. G. Arya, Munugala Chandrakanth, Neethu Mariam Thomas, Yupeng Li, Ramesh Gondru, Manne Munikumar and Janardhan Banothu\*



8055

### Phytosulfokine peptide library: chemical synthesis and biological evaluation on protoplast regeneration

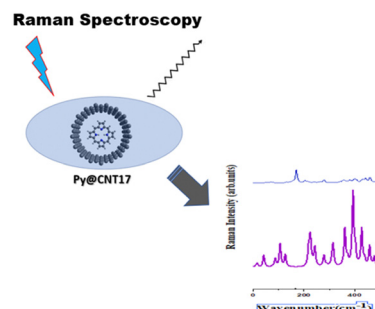
Jasper W. van de Sande, Dieuwertje E. Streefkerk, Richard G. H. Immink, Martijn Fiers and Bauke Albada\*



8064

### van der Waals interactions on semiconducting single-walled carbon nanotubes filled with porphyrin molecules: structure optimisation and Raman analysis

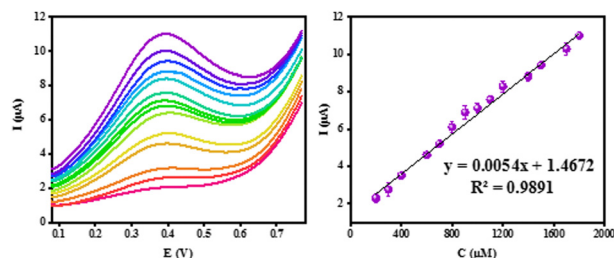
Anass El Fatimy, Mourad Boutahir,\* Abdelhai Rahmani and Abdelali Rahmani



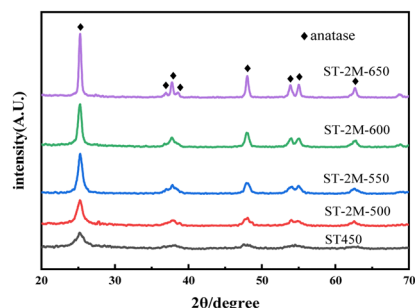
8074

### Selenium and phosphide-doped hollow porous N-doped carbon nanobox-based electrospun N-doped carbon nanofibers toward electrochemical sensing of hydrogen peroxide

Farzaneh Mohammadi, Mahmoud Roushani\* and Hadi Hosseini\*



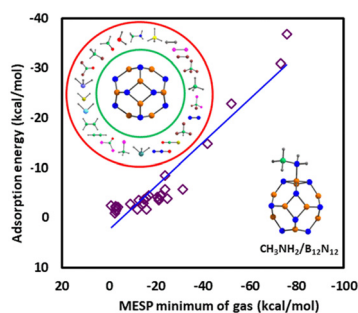
8082



### A potential catalyst for $\alpha$ -pinene isomerization: a solid superacid

Xuan Meng,\* Yanqi Chen, Wenxing Wu, Naiwang Liu and Li Shi

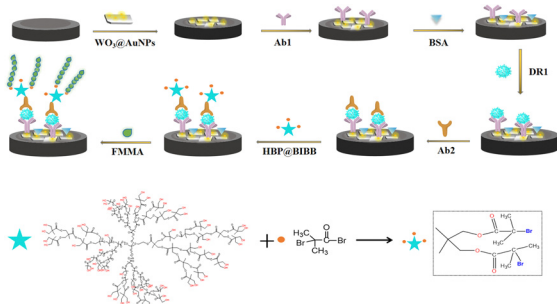
8093



### Adsorption of gases on $B_{12}N_{12}$ and $Al_{12}N_{12}$ nanocages

Remya Geetha Sadasivan Nair,\*  
Arun Kumar Narayanan Nair\* and Shuyu Sun\*

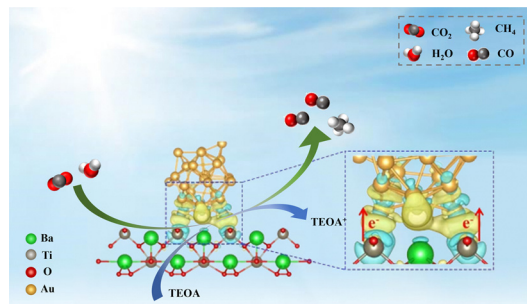
8106



### A novel electrochemical biosensor based on $WO_3@AuNPs$ and HBP@BIBB macromolecule-triggered ATRP for DR1 detection

Xiaoqing Cui, Yaping Zhang, Hanmeng Zhang,  
Huaixia Yang,\* Yanju Liu\* and Fuchun Si\*

8116



### Plasmonic Au nanoparticles enhance the photogenerated electron efficiency for carbon dioxide photoreduction

Jiachao Dai, Kang Zhong, Yuanbin She,\* Jinman Yang,  
Yingjie Hua, Xingwang Zhu,\* Hui Xu and Huaming Li\*



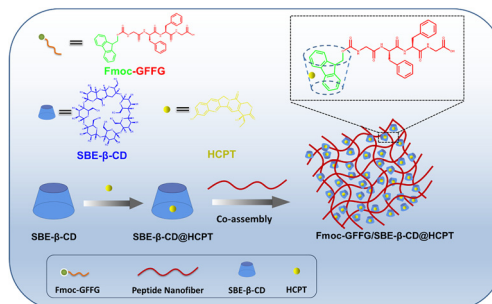


## PAPERS

8125

### Reinforcement of nanofibrillar hydrogels via cyclodextrin and self-assembling peptide interactions for controlled drug delivery

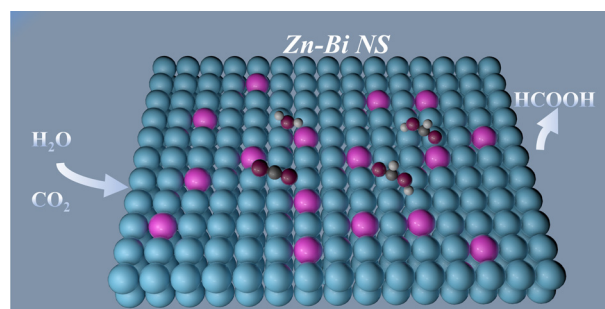
Fangling Cao, Jing Xu, Xiujie Wang, Yuanyuan Liu, Shuqin Pang, Qishu Jiao, Shuyao Zhou, Wenyong Zhong\* and Keming Xu\*



8135

### A Zn regulated Bi nanosheet catalyst for improving electrochemical CO<sub>2</sub> reduction to formate over a wide potential window

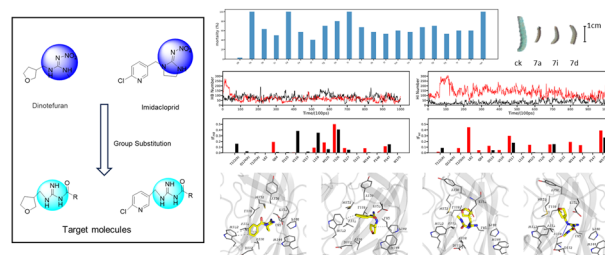
Pin Gao, Lan Kang, Chao Wen, Fanjiao Kong, Lin Tao, Lihui Dong, Minguang Fan, Huibing He, Bin Li\* and Zhengjun Chen\*



8143

### Synthesis, biological activity, and binding modes of novel guanidino-containing neonicotinoid derivatives

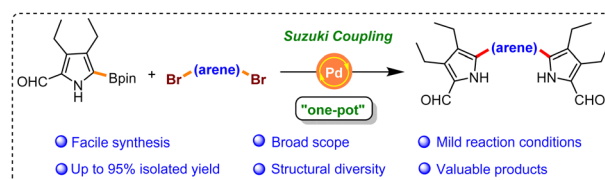
Jiayang Li, Jing Miao, Peibo Liang, Yiyang Wang, Xingyue Zhou, Huizhe Lu, Yanhong Dong and Jianjun Zhang\*



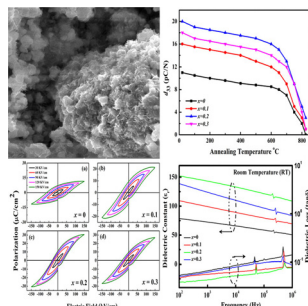
8153

### "One-pot" synthesis of oligopyrrolic dialdehydes

Fei Wang, Yi Zhang, Wei Zhou, Zhiqing Long, Shenglun Xiong, Qinpeng Zhang, Jonathan L. Sessler\* and Qing He\*



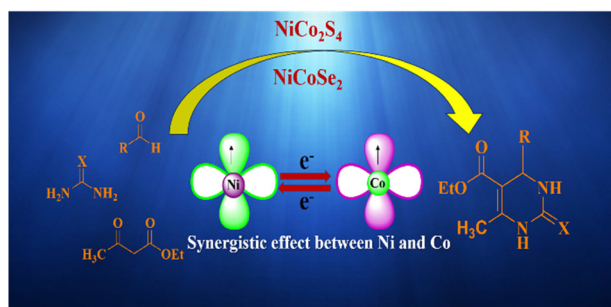
8158



### Influence of $\text{MnO}_2$ on the ferroelectric properties, energy storage efficiency and piezoelectric properties of high-temperature $\text{Bi}_3\text{TaTiO}_9$ ceramics

Muhammad Rizwan, Muhammad Adnan Kaiser,<sup>\*</sup> Qurat ul-ain, Ahmad Hussain, Uzma Ghazanfar<sup>\*</sup> and A. Dahshan

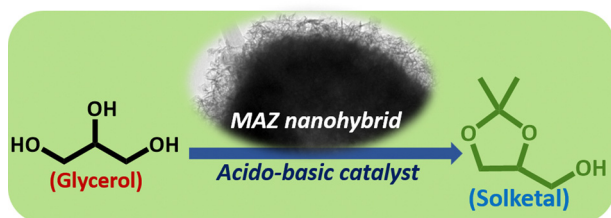
8164



### Heterogeneous catalysts $\text{NiCoSe}_2$ and $\text{NiCo}_2\text{S}_4$ for the effective synthesis of dihydropyrimidine-2-ones/thiones

Ramya M., Shivakumar P., Nagaraju D. H.,<sup>\*</sup> Lalithamba H. S. and Nagendra G.<sup>\*</sup>

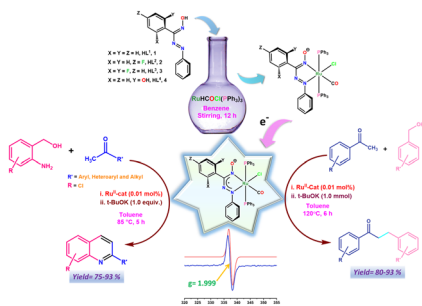
8172



### High value-added fuel additive production from waste bio-glycerol over a versatile nanohybrid catalyst

Vijendra Singh,<sup>\*</sup> Selvamani Arumugam,<sup>\*</sup> Deepak Joshi, Mahesh Kumar, Sadhna Semalt and Nagabhatla Viswanadham<sup>\*</sup>

8181



### Ruthenium complexes of redox non-innocent aryl-azo-oximes for catalytic $\alpha$ -alkylation of ketones and synthesis of 2-substituted quinolines

Supriyo Halder, Srijita Naskar, Debashis Jana, Gopal Kanrar, Kausikisankar Pramanik<sup>\*</sup> and Sanjib Ganguly<sup>\*</sup>

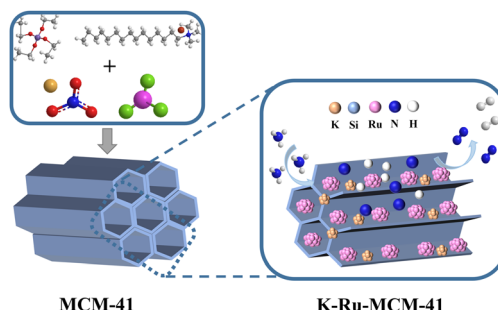


## PAPERS

8195

### Potassium-promoted Ru-MCM-41 catalyst *via in situ* loading for effective low-temperature ammonia decomposition

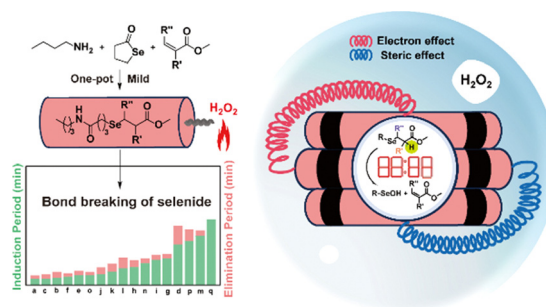
Jingwei Yang, Xiaodong Zhao, Xun Qi, Jie Wen\* and Hui Zhang\*



8203

### Selenol-ene chemistry-based one pot reaction for unsymmetric selenides synthesis and rate regulation of selenide oxidative elimination

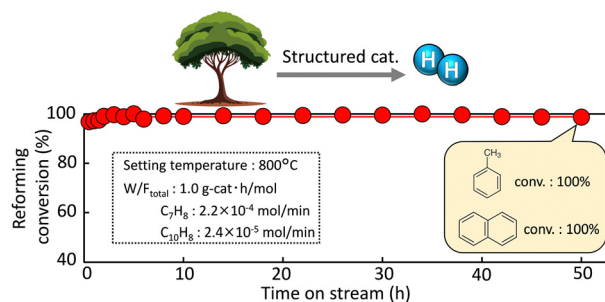
Yu Xiang, Jiandong Zhang, Yiming Xu, Dianliang Wang, Zhengbiao Zhang, Jian Zhu,\* Weihong Lu,\* Hanliang He\* and Xiangqiang Pan\*



8213

### Steam reforming of aromatics mixture as a model tar over Ni/Al<sub>2</sub>O<sub>3</sub> structured catalyst

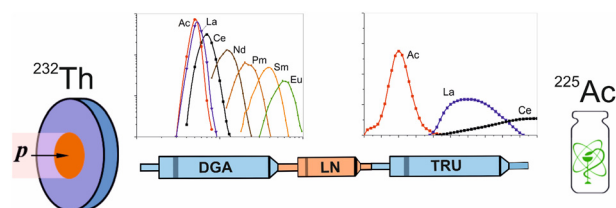
Ryo Watanabe,\* Takuya Tanabe, Yuya Fushimi, Priyanka Verma and Choji Fukuhara\*



8222

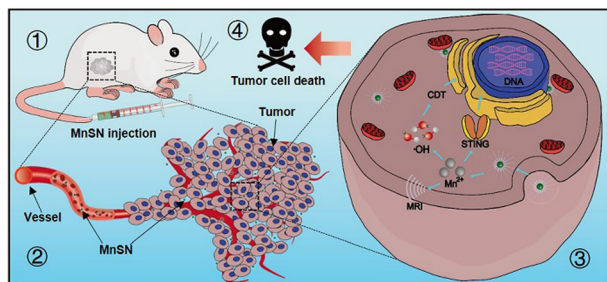
### Production of <sup>225</sup>Ac for medical application from <sup>232</sup>Th-metallic targets in Nb-shells irradiated with middle-energy protons

Stanislav V. Ermolaev, Aleksandr N. Vasiliev,\* Elena V. Lapshina, Aleksandr A. Kobtsev and Boris L. Zhuikov



## PAPERS

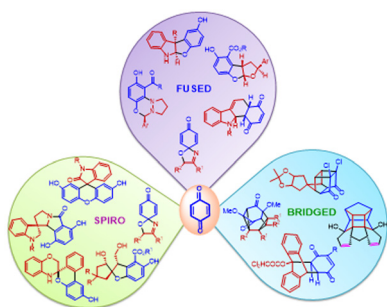
8233



**pH-Responsive manganese sulfide nanotheranostics amplifying cGAS-STING activation for MRI-guided immunotherapy**

Tingting Zhang, Mingya Tan, Mengke Fan, Zhenghuan Zhao and Zhiping Peng\*

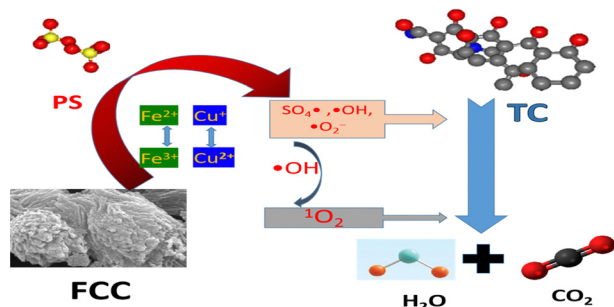
8243



**Annulations involving *p*-benzoquinones: stereoselective synthesis of fused, spiro and bridged molecules**

Suven Das

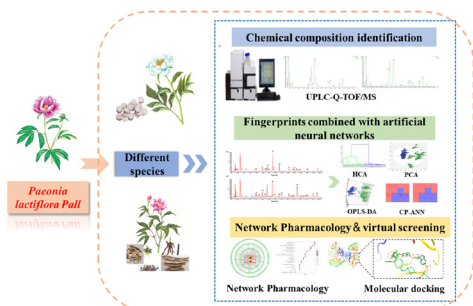
8277



**Preparation of Fe/CuFe<sub>2</sub>O<sub>4</sub> embedded in porous carbon composites for removal of tetracycline from aqueous solution**

Menghe Liu, Congyang Zou,\* Yong Wang, Zhuyou Zhou and Yufeng Ji

8290



**Application of UPLC-Q-TOF-MS with chemometric analysis and network pharmacology for comparison of different species: *Paeonia lactiflora* Pall. as an example**

Zijie Yang, Jinli Wen, Huijie Zhang, Meiqi Liu, Yi Liu, Lili Sun\* and Xiaoliang Ren\*



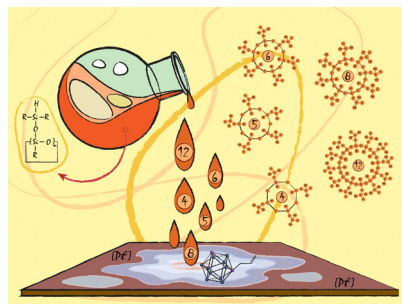


## PAPERS

8304

### Carborane-containing stereoregular cyclic phenylsiloxanes: synthesis, structure and properties

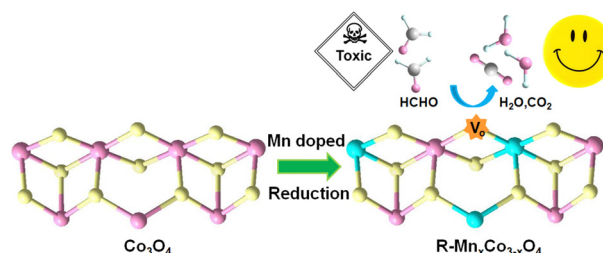
E. O. Minyaylo, A. I. Kudryavtseva, A. A. Anisimov, A. V. Zaitsev, D. A. Khanin, V. A. Ol'shevskaya, M. I. Buzin, A. S. Peregudov, O. I. Shchegolikhina and A. M. Muzafarov



8314

### NaBH<sub>4</sub> reduced Mn-doped cobalt tetroxide R-Mn<sub>x</sub>Co<sub>3-x</sub>O<sub>4</sub> catalysts with plentiful oxygen vacancies for HCHO oxidation at low temperature

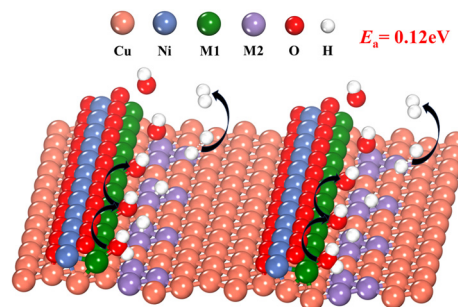
Gang Yan,\* Xiaojun Du, Xiangwei Guo,\* Xuzheng Cao and Hongfei Shi\*



8324

### NiCrO/MCu111 interface sites for synergistic catalysis of water splitting

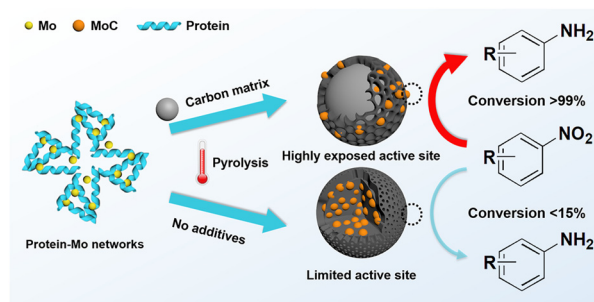
Tonghui Mu and Dongxu Tian\*



8331

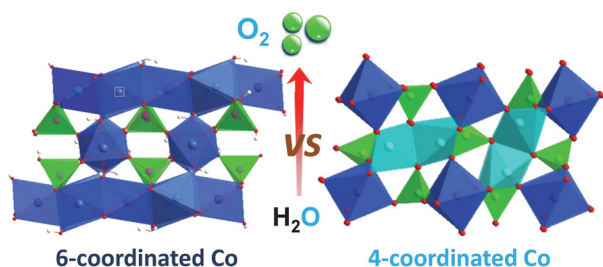
### Protein–metal ion networks coated carbon matrix as a precursor: to construct carbon-supported Mo-based catalysts with highly exposed active sites for hydrogenation of nitro compounds

Lizhen Lian, Guangji Zhang, Xiaojun Zhao, Jianhan Huang, Liqiang Wang\* and You-Nian Liu\*



## PAPERS

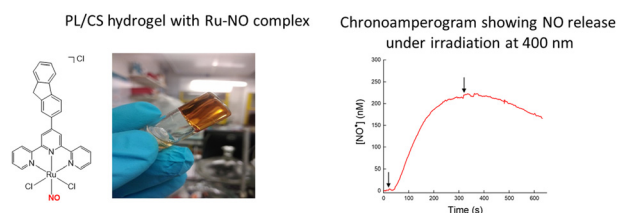
8338



### Modulating the geometrical sites of cobalt phosphates by autologous pyrolysis for electrocatalytic water oxidation

Fanfan Shang, Shujiao Yang and Wei Zhang\*

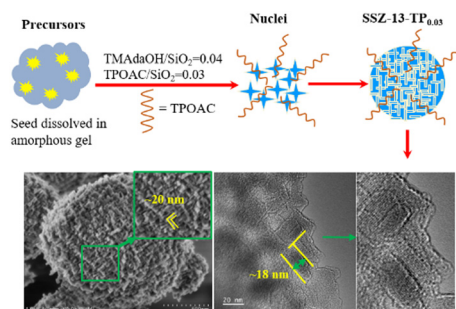
8343



### Photorelease of nitric oxide from Pluronic F127/chitosan hydrogels incorporating a water soluble ruthenium nitrosyl complex

Hazem Gzam, Dalel Katar, Marine Tassé, Yue Xiao, Isabelle Malfant,\* Juliette Fitremann, Patricia Vicendo, Anne-Françoise Mingotaud\* and Dominique de Caro\*

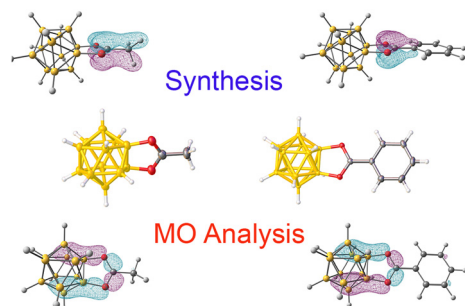
8352



### Seed-assisted synthesis of a nanosheet-assembled hierarchical SSZ-13 zeolite by coupling a small amount of TMAdaOH with TPOAC

Huifang Zhang, Qiuyu An, Feng Yu and Binbin Fan\*

8361



### Carboxonium derivatives based on *closo*-dodecaborate anions [1,2-B<sub>12</sub>H<sub>10</sub>O<sub>2</sub>CR]<sup>−</sup>: synthesis and molecular orbital analysis

Anastasia V. Kolbunova, Ilya N. Klyukin,\* Alexander S. Novikov,\* Alexey V. Nelyubin, Andrey P. Zhdanov, Alexey S. Kubasov, Nikita A. Selivanov, Alexander Yu. Bykov, Konstantin Yu. Zhizhin and Nikolay T. Kuznetsov

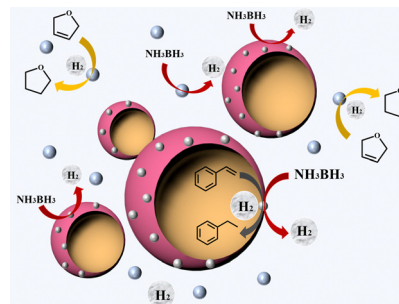


## PAPERS

8371

### A pH-switchable Pickering emulsion synergistically stabilized by nanoparticles as an efficient medium for utilizing ammonia borane for organic conversion

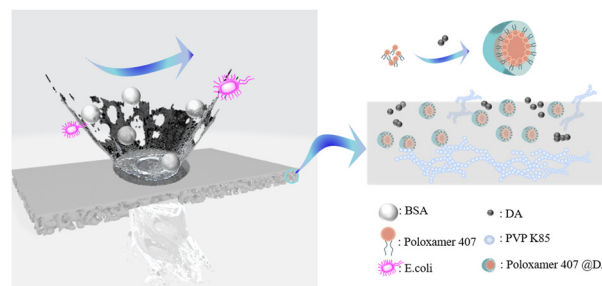
Ying Zhang, Pan Luo, Jie Qi, Hongsheng Lu,\* Li Wang\* and Yuanpeng Wu\*



8386

### A high flux ultrafiltration membrane with a multi-hydrophilic particle additive and controlled self-assembly of micellar particles

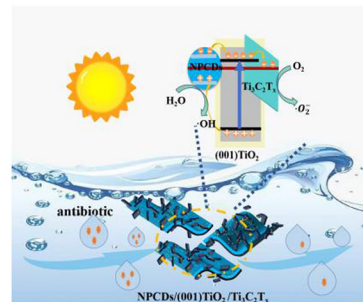
Dongli Guo, Zehua Yin,\* Mingyu Zhang, Mohammed Kamal Hadi, Zhijiang Sun, Tao Yao and Fen Ran\*



8402

### Nitrogen and phosphorus co-doped carbon point modified 2D/2D (001)TiO<sub>2</sub>/Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> heterostructures for highly efficient photocatalytic degradation of antibiotics in water

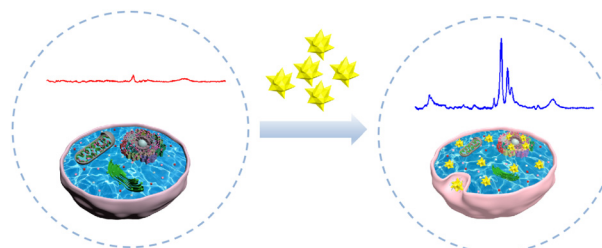
Ting Li,\* Qianqian Zou, Junhai Wang, Qiang Li, Yumu Zhou and Yulan Tang



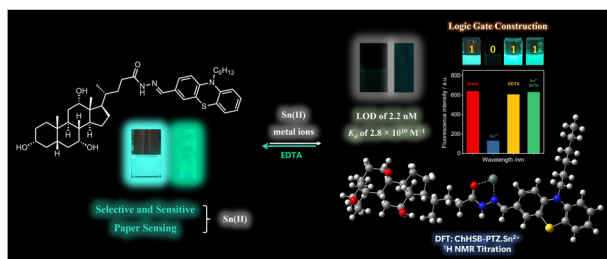
8416

### Raman fingerprint provides deep insights into alternations in *Ganoderma lingzhi* triterpene-induced molecular events in cells

Shuwei Shen, Binbin Huang, Zhiyi Peng, Luting Yu,\* Lili Ren, Jia Liu\* and Guoguang Chen\*



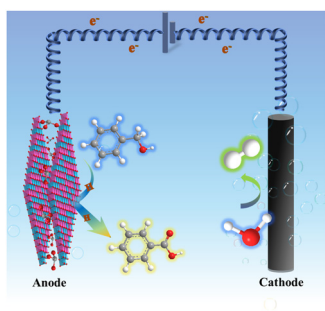
8425



**Functionalized Schiff-base containing phenothiazine and cholic acid as a paper-based fluorescence turn-off sensor for Sn(II) ion detection and its application**

Dipakkumar Bariya and Satyendra Mishra\*

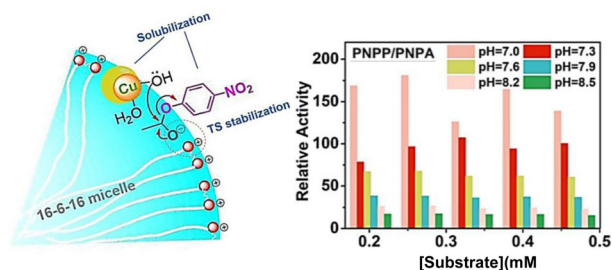
8436



**Synergistic effects of vanadium incorporation in cobalt-based LDH on electron and proton transfer during electrocatalytic benzyl alcohol oxidation**

Jingjing Bai, Liang Chen,\* Chenghang Lv, Hongyu Ruo, Yanlong Pan, Shoudong Xu, Jiaqi Chen, Bingchuan Yang,\* Ding Zhang and Huimin Yang\*

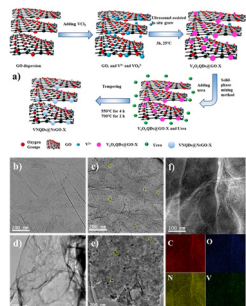
8445



**Micelle-modulated reactivity of novel copper(II) complexes with reduced L-histidine Schiff bases as mimic carboxylesterases**

Tong Ni, Qin Zhang, Xiuyang Wang, Bin Xu,\* Shengbin Zhou, Kaiming Zhang and Weidong Jiang\*

8454



**Ultrafine VN quantum dots modified with a nitrogen-doped reduced graphene oxide anode material for enhanced rate capability and lifespan of lithium-ion batteries**

Dong Wang, Zihan Guo, Zhiwei Wang and Yanfang Gao\*



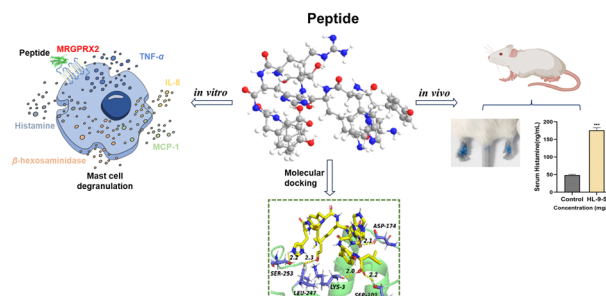


## PAPERS

8464

## Exogenous analogues of substance P trigger pseudo-allergic reactions through activation of MRGPRX2

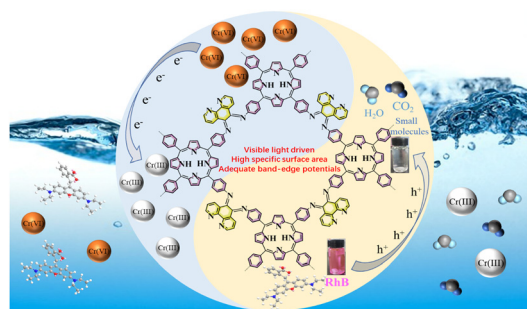
Yi Shan, Jiayu Lu, Na Li, Xiaoxue Mo, Cheng Wang and Huaizhen He\*



8472

## Conjugated microporous polymer with matched energy band structure as photocatalyst for simultaneous removal of heavy metal ion and organic pollutant

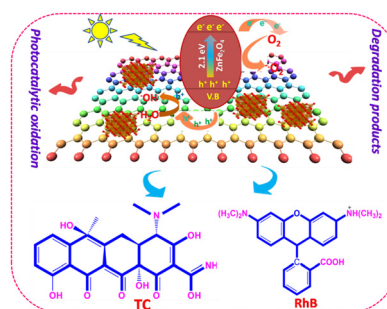
Jing Zang, Changjiang Bao, Hao Li, Yue Gao, Xiaohan Dou, Yanwei Li,\* Wenyue Dong, Linfang Shi, Yanhui Li and Qian Duan\*



8479

## ZnFe<sub>2</sub>O<sub>4</sub> loaded on municipal waste-char: outstanding adsorption and photocatalytic removal of contaminants

Aaliya Qureashi, Firdous Ahmad Ganaie, Arshid Bashir,\* Irfan Nazir, Zia ul Haq, Lateef Ahmad Malik, Kaniz Fatima, Abdullah Yahya Abdullah Alzahrani and Altaf Hussain Pandith\*



8495

## Temperature-dependent structural and optical properties of Sb-doped SnO<sub>2</sub> nanoparticles and their electrochemical analysis for supercapacitor application

Towseef Ahmad and Mohd Zubair Ansari\*

