

## IN THIS ISSUE

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### Cover

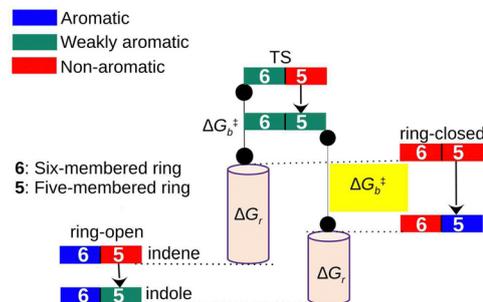
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## PERSPECTIVE

6091

### T-type diarylethenes for molecular solar thermal energy storage: aromaticity as a design principle

Thillaiarasi Sukumar, D. Sravanakumar Perumalla, Kamatham Narayanaswamy, Bo Durbeej\* and Baswanth Oruganti\*

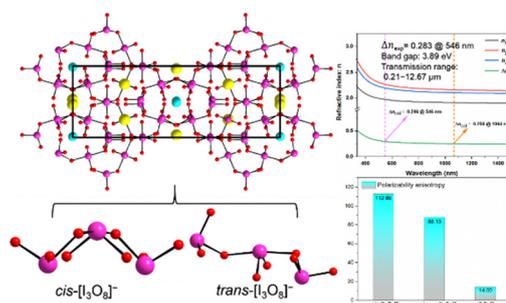


## COMMUNICATIONS

6103

### $K_2Na(l_3O_8)_3$ : a promising mid-infrared birefringent material with two different structures of octaoxotriiodate(v) polyanions

Min-Quan Lin, Meng-Fan Duan, Jiang-Gao Mao and Bing-Ping Yang\*



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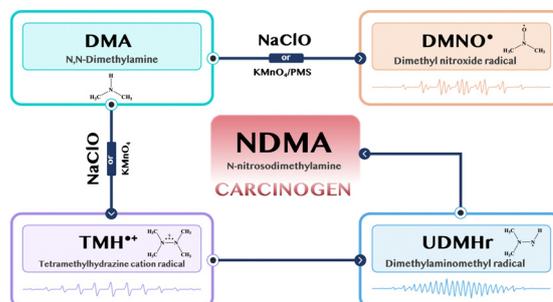
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## COMMUNICATIONS

6109

## EPR detection of nitrogen-containing radicals in dimethylamine oxidation: insights into NDMA formation

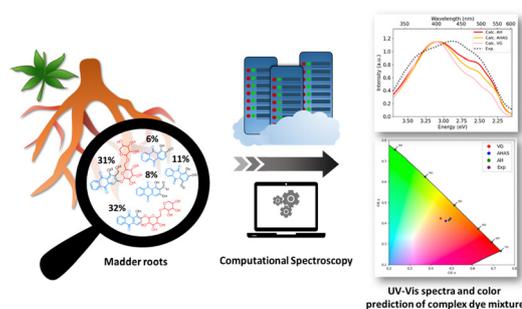
Sifan Qiu, Chunxiao Xu, Yu Fu, Lingli Wang, Pu Wang, Jinhui Cao, Yanna Xue and Zhaohui Wang\*



6114

## Progress in modeling complex dye mixtures: a case study for cultural heritage

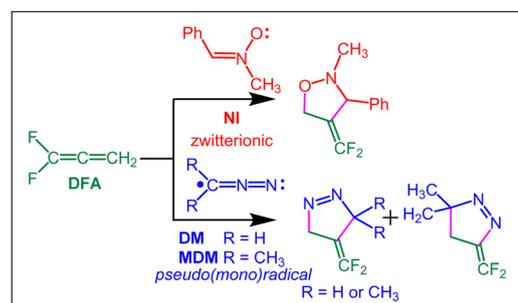
Linh T. T. Tran, Maguy Jaber and Romain Berraud-Pache\*



## PAPERS

6120

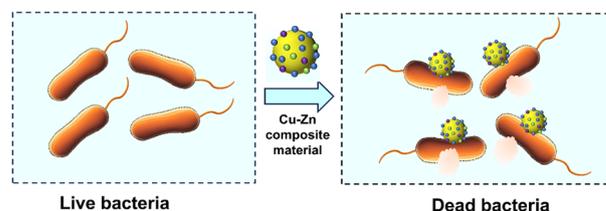
## Understanding [3+2] cycloaddition reactions of difluoroallene to nitron and diazoalkanes from the molecular electron density theory perspective

Barsali Banerjee, Luis R. Domingo,\*  
Haydar A. Mohammad-Salim, Asmita Mondal and Nivedita Acharjee\*

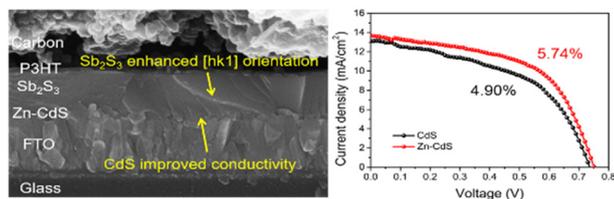
6130

## Preparation of Cu–Zn oxide-loaded calcium carbonate composites and their long-lasting and efficient antimicrobial properties

Jing Yao, Huiying Wang, Ziwang Che, Bolin Feng, Hailong Cheng, Yingying Huang, Yunlong Zhou, Qiuping Qian\* and Zhenbin Chen\*



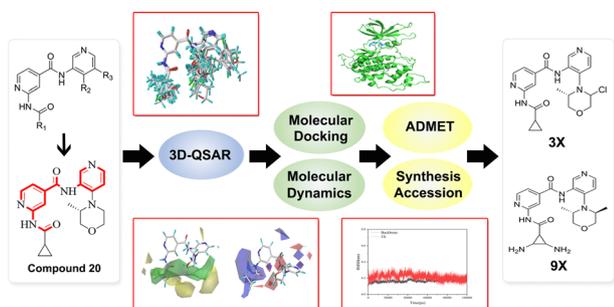
6143



### High quality CdS buffer layer developed via Zn salt additive engineering for $\text{Sb}_2\text{S}_3$ solar cells

Yafeng Xu,\* Yu Li, Jian Yao, Xiang Liu, Shengbiao Zhang, Shihao Zhang, Shuqin Dong, Yue Yao, Xihong Ding and Meng Wang\*

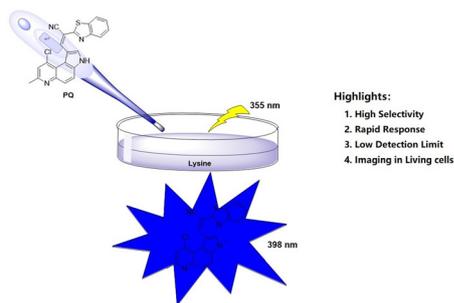
6151



### *In silico* design of novel potential isonicotinamide-based glycogen synthase kinase-3 $\beta$ (GSK-3 $\beta$ ) inhibitors: 3D-QSAR, molecular docking, molecular dynamics simulation and ADMET studies

Minfan Pei, Aiyun Qian, Li Cao, Zhenfang Wang, Yiping Lu, Chaoqun Yan\* and Taigang Liang\*

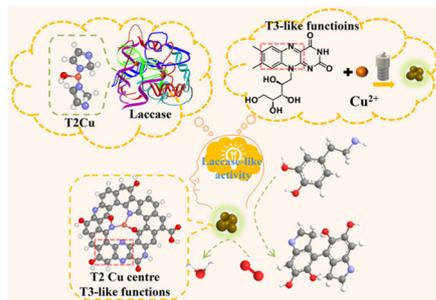
6164



### A new nitrogen-containing heterocyclic fluorescent probe for the selective sensing of lysine with rapid response in living cells

Bing Yang,\* Jiahua Zhou, Dongdong Li, Ruojun Man, Hong Dai\* and Qun Zhao\*

6169



### Natural laccase-guided synthesis of copper-doped carbon dots with enhanced laccase-like activity

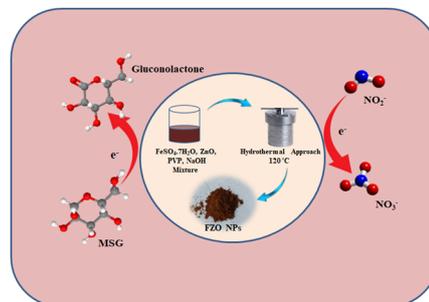
Zhanghong Guo, Lin Zhou, Haining Cui, Jinxin Ma, Chan Wang and Qijun Song\*



6178

### Highly sensitive electrochemical detection of monosodium glutamate and nitrite on a binary metal (FeZnO) nanocomposite

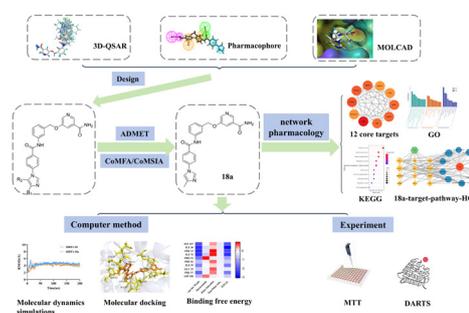
R. Mayildurai, S. Mahalakshmi,\* T. Maruthavanan, K. Karthikeyani Vijayakumari, R. Priya, M. Ramesh and C. Sankar\*



6187

### Design and interaction mechanism of novel SIRT1 inhibitors for the treatment of hepatocellular carcinoma

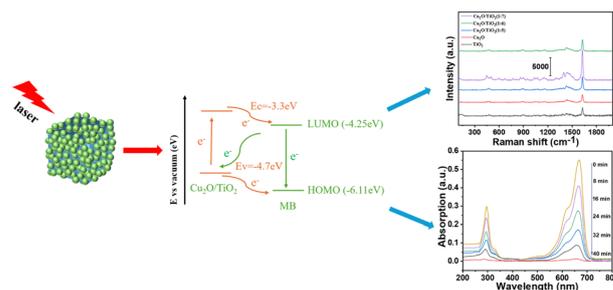
Jing Luo, Xiaomeng Wang, Qiao Fu, Yan Yang, Zhenxing Yu and Juan Wang\*



6208

### Cubic Cu<sub>2</sub>O combined with TiO<sub>2</sub> for ultra-sensitive SERS detection and effective removal of organic molecules

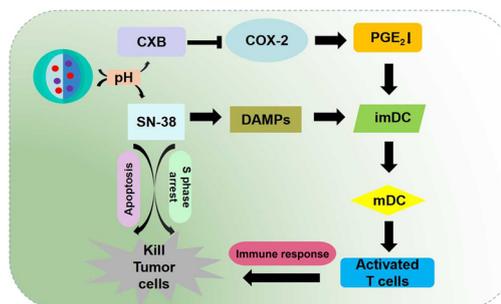
Rui Cheng,\* Huanhuan Wu, Huihui Ding and Xiufang Wang\*



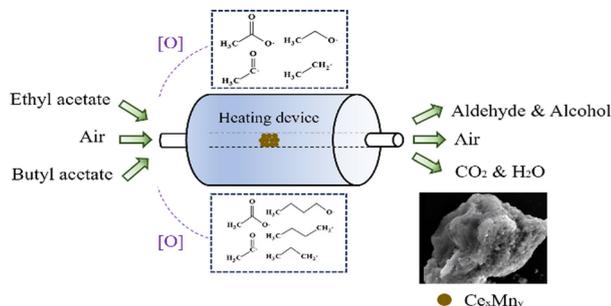
6216

### Biodegradable nanoparticle-enhanced chemoimmunotherapy based on precise tumor killing and tumor microenvironment regulation strategy

Meng-Jiao Gao, Ran Wei, Chen-Chen Li, Li Wang, Can Liu, Xu-Ying Liu,\* Shu-Yan Liu\* and Yan-Fei Kang\*



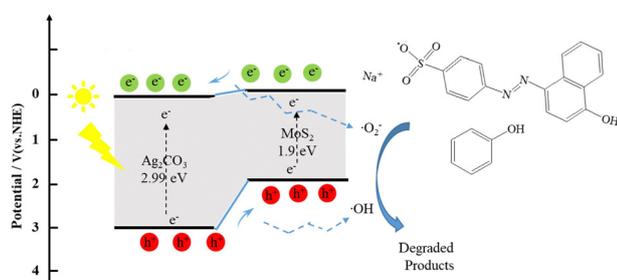
6226



### Catalytic oxidation of low concentration ethyl acetate and butyl acetate on cerium–manganese composite metal oxides

Yuewen You, Zhihong Zhang,\* Zhekai Sun and Biao Pan

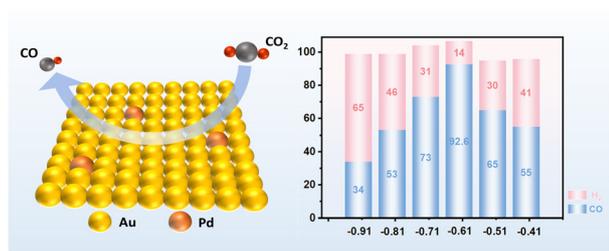
6235



### Coupling of $\text{MoS}_2$ nanosheets into $\text{Ag}_2\text{CO}_3$ micro-blocks to strengthen their photocatalytic performance in degradation of phenol and dyes

Fuwei Nian, Guanyang Zeng, Shuhong Wang, Qingyun He, Ying Huang and Changlin Yu\*

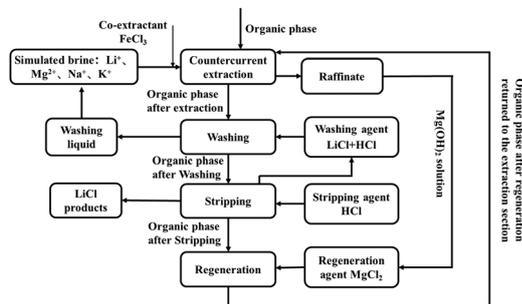
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### Fresh-raising effect of Pd on a Au–Pd/C catalyst for highly efficient electrocatalytic properties towards the $\text{CO}_2$ reduction reaction

Jiaqian Liu, Meiyang Yang, Ying Liu, Wuxi Guo, Lijuan Chen,\* Zhongshui Li,\* Qiufeng Huang and Shen Lin

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### Selective extraction of lithium from salt lake brine with a high Mg/Li ratio using an *N,N*-dioctyl-2-methoxyacetamide- $\text{FeCl}_3$ -sulfonated kerosene extraction system

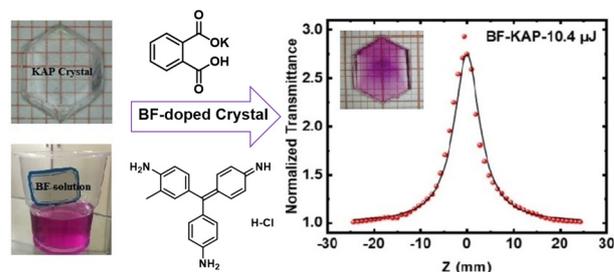
Shujin Zhu, Xiujing Peng, Yuhua Cui, Jixi Zheng, Junxiang Wang, Yu Cui, Xiaolei Liu, Yexin Li, Xuchuan Jiang\* and Guoxin Sun\*



6262

### Growth of dyed KAP crystals and their third-order nonlinear optical properties

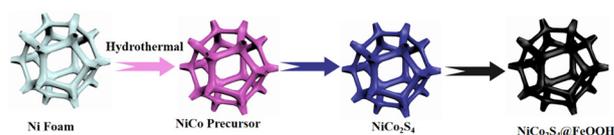
Jie Zhao, Yunfei Li,\* Xiaodong Wang,\* Jibin Sun,\* Chenghua Sun and Shuyun Zhou



6269

### Interface electronic coupling in NiCo<sub>2</sub>S<sub>4</sub> nanorod-amorphous FeOOH nanosheets with enhanced catalytic activity in the oxygen evolution reaction

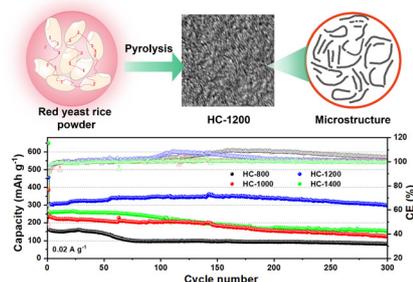
Jiping Tian, Yuhan Ye, Jiaye Zhou, Shuisheng Li, Bowen Duan, Lu Shen and Bin He\*



6277

### Biomass-derived hard carbon with tunable microstructures for sustainable and high-rate sodium-ion batteries

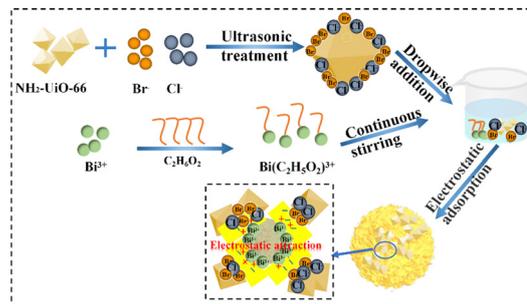
Zhanpeng Zhang, Anning Zhang, Shichao Wang, Jinfeng Sun,\* Linrui Hou and Changzhou Yuan\*



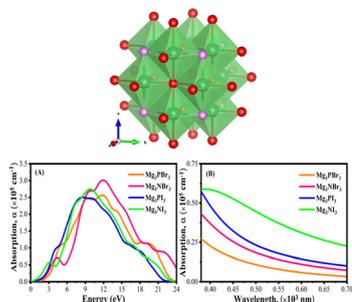
6288

### Preparation of a NH<sub>2</sub>-UiO-66/BiOCl<sub>0.3</sub>Br<sub>0.7</sub> (NU/BiOCl<sub>0.3</sub>Br<sub>0.7</sub>) Z-scheme heterogeneous photocatalyst for degradation of antibiotics by one-pot electrostatic adsorption

Hongya Liu, Yanhua Gao,\* Juan Ren, Ying Chen and Yuning Liang



6298



### Control of B-cation and X-anion atoms in inorganic Pb-free novel $Mg_3BX_3$ ( $B = P, N$ ; $X = Br, I$ ) perovskites: a first-principles framework

Md. Mehedi Hasan, Md. Rabbi Talukder, Jehan Y. Al-Humaidi, A. M. Quraishi, Parvez Ali, Md Rasidul Islam\* and Md Masud Rana\*

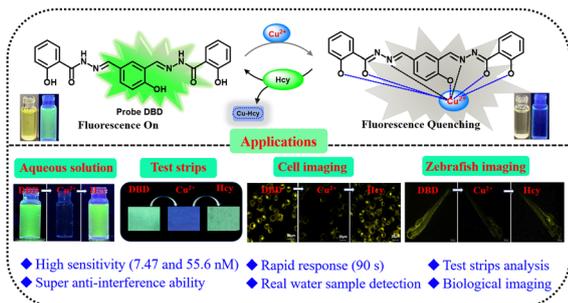
6313



### A Zr/Ti-based bimetallic AO-Uio-66 framework for effective uptake of radioactive iodine

Dan Wang, Wenjing Cai, Qiuxiang Feng, Feng Cao, Qianli Zhang, Qiang Xu, Li Li\* and Jie Liu\*

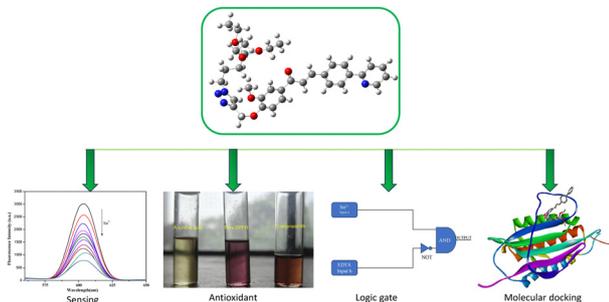
6323



### A novel colorimetric "on-off-on" fluorescent probe based on tris(salicylaldehyde) for the sequential recognition of $Cu^{2+}/Hcy$ and its application in bioimaging

Yingyue Ding, Ruiying Zhang, Xuanbing Qian, Yichi Zhang, Yifan Wei, Lingxia Jin, Qin Wang and Xiaoyan Cao\*

6332



### Fluorescent chalcogenyl organosilanes: a brilliant dual-action tool for Sn(II) detection and cancer cell suppression *via* MAD2 inhibition

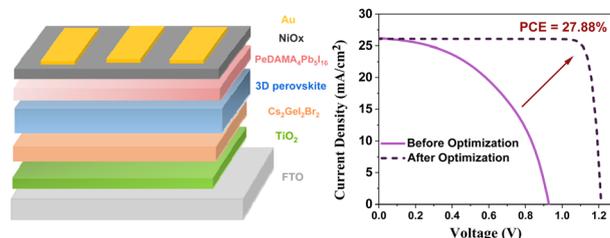
Gurjaspreet Singh,\* Sumesh Khurana,\* Manickam Selvaraj, Mohit, Heena, Mithun, Swati Devi, Vikas, Baljinder Singh Gill and Deepanjali Baliyan



6346

## Improving the efficiency of perovskite photovoltaics using a hierarchical 2D/3D/2D structure

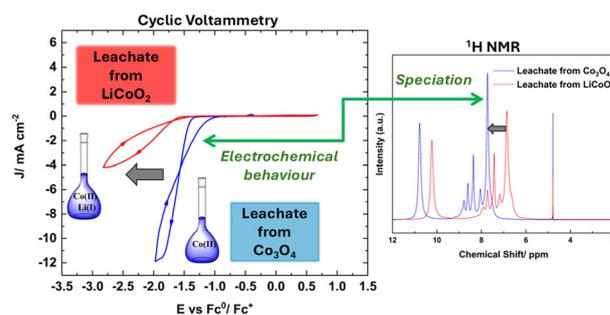
Mustafa K. A. Mohammed,\* Haider G. Abdulzahraa, Ethar Yahya Salih, Prakash Kanjariya, Asha Rajiv, Md. Ferdous Rahman, Erdi Akman\* and Zaher Mundher Yaseen



6360

## Understanding the impact of additives on cobalt leaching efficiency using a citric acid-based deep eutectic solvent

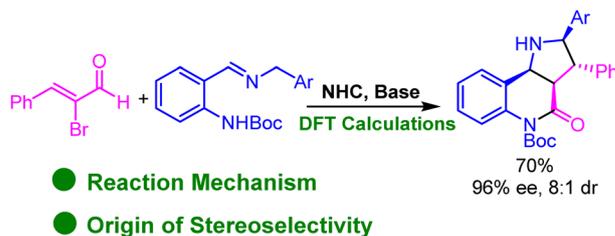
Isuri N. Perera, Jennifer M. Pringle, Luke A. O'Dell, Amal Siriwardana and Cristina Pozo-Gonzalo\*



6374

## DFT study on the mechanism and origin of stereoselectivity of an NHC-catalyzed activation/transformation of an $\alpha$ -bromo enal

Peilin Han,\* Yujiao Hou, Suxiang Ge, Zhifei Yang, Yongli Yan, Haodi Guo and Chunhui Liu\*



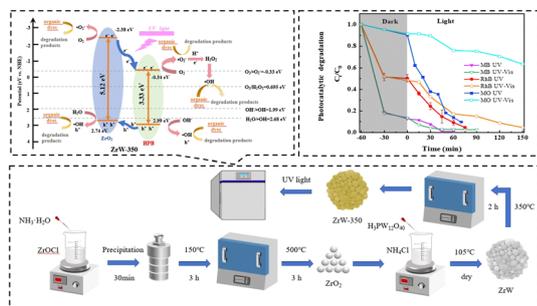
6380

## Algal nanobionics and a nanobiohybrid system of biosynthesized ZnO-NPs to augment the cellular accumulation of biomolecules and its effect on microalgae

Afreen Parveen, Jyoti Rawat, Bhawna Bisht, Krishna Kumar Jaiswal, Shabaaz Begum J. P., Shivam Pandey, Pankaj Gautam, Mikhail S. Vlaskin and Vinod Kumar\*



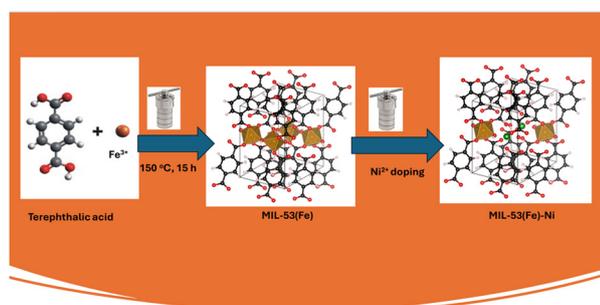
6396



### Fabrication of type II ZrO<sub>2</sub>/heteropoly blue heterojunction photocatalysts for efficient organic dye degradation

Jing Li,\* Can Chen, Shengbin Jin and Shaofan Feng

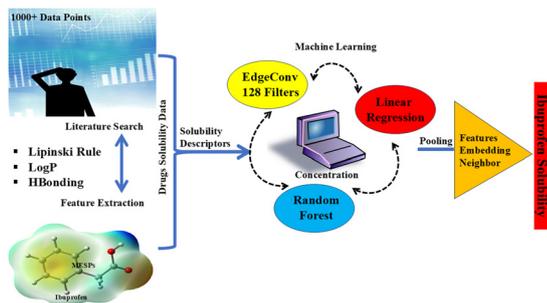
6409



### Facile one-step preparation of Ni-doped MIL-53(Fe) metal-organic frameworks for efficient hybrid supercapacitor performance

Kabir O. Otun\* and N. Mketo\*

6421



### A machine learning-assisted design for adjusting the solubility of ibuprofen-related binary compounds: a data driven approach

Hussein A. K. Kyhoiesh,\* Wissam A. Hweidi, Mohanad H. Najm, Imad I. Dawood, Ashraf Y. Elnaggar, Islam H. El Azab and Mohamed H. H. Mahmoud

6433



### Single-phase 2-carboxyethyl(phenyl)phosphinic acid-modified Zr-MOFs as flame retardants for enhancing fire retardancy and smoke suppression of epoxy resins

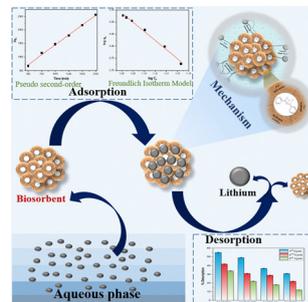
Xiangyu Song, Zhiyong Zhang, Yongzhen Ji, Dashu Chen\* and Liu Yang\*



6443

### *In situ* extraction of lithium from the aqueous phase using chemically modified *Hylocereus undatus* peel: kinetics, thermodynamics and in-field optimization

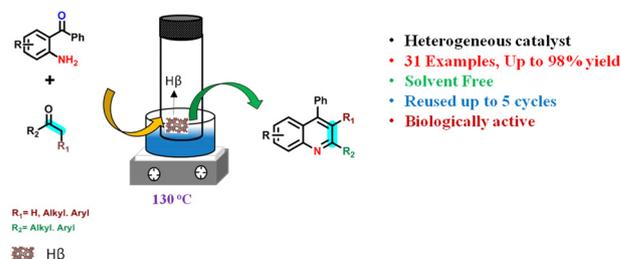
Dipti Chaudhary, Roshni Kumari and Anirbid Sircar\*



6461

### Solvent-free approach for the synthesis of 2,4-disubstituted quinolines using zeolites: evaluation of biological activity

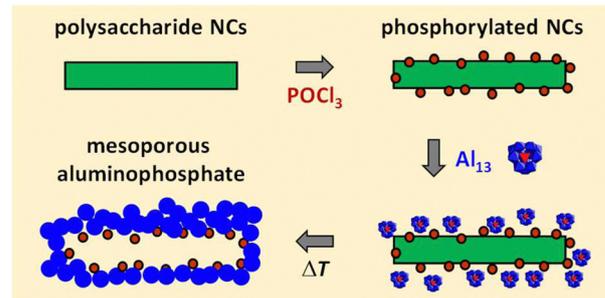
Lekkala Madhuri, Gajula Krishna Sai,\* Avusali Sai Teja, Amrutham Vasu, Ambadipudi S. S. S. Sudha, Andugulapati Sai Balaji,\* Thota Jagadeshwar Reddy and Nama Narendra\*



6469

### Phosphorylated chitin and cellulose nanocrystals as colloidal bio-templates towards mesoporous aluminophosphates

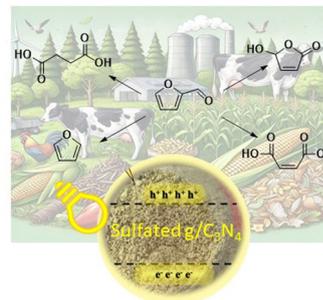
Sara Blilid, Nadia Katir, Abdelkrim El Kadib, Mohammed Lahcini, Valérie Flaud, Bruno Alonso\* and Emmanuel Belamie\*



6484

### Solvent and light-controlled selective photo-oxidation of furfural into high value-added chemicals using sulfated g-C<sub>3</sub>N<sub>4</sub> as photocatalyst

Mona Hosseini-Sarvari,\* Melika Rahimi and Saeede Saki



## CORRECTION

6495

**Correction: Synthesis of chiral hexynones for use as precursors to native photosynthetic hydroporphyrins**

Khiem Chau Nguyen, Duy T. M. Chung, Phattananawee Nalaoh and Jonathan S. Lindsey\*

