

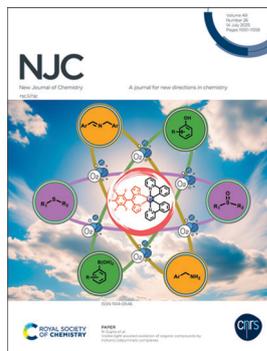
## IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 49(26) 11051-11558 (2025)



### Cover

See Yosuke Matsuo *et al.*, pp. 11068–11079. Image reproduced by permission of Yosuke Matsuo from *New J. Chem.*, 2025, 49, 11068.



### Inside cover

See Ilti Gupta *et al.*, pp. 11080–11088. Image reproduced by permission of Ilti Gupta from *New J. Chem.*, 2025, 49, 11080.

## EDITORIAL

11066

### Themed collection: 12th International Mesostructured Materials Symposium (IMMS12)

Peter Hesemann and Bao-Lian Su

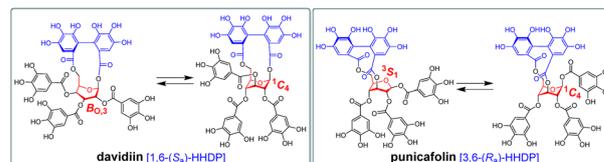


## PAPERS

11068

### Conformationally flexible ellagitannins: conformational analysis of davidiin and punicafolin by DFT-based $^1\text{H}$ – $^1\text{H}$ coupling constant calculations

Yosuke Matsuo,\* Misato Iki, Chiho Okubo, Yoshinori Saito and Takashi Tanaka



# RSC Applied Interfaces

GOLD  
OPEN  
ACCESS

Interfacial and surface research  
with an applied focus

Interdisciplinary and open access



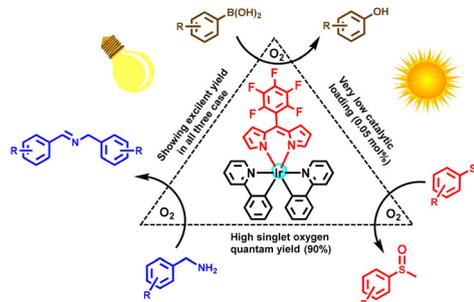
[rsc.li/RSCApplInter](http://rsc.li/RSCApplInter)

Fundamental questions  
Elemental answers

11080

## Visible light assisted oxidation of organic compounds by iridium(III)dipyrrinato complexes

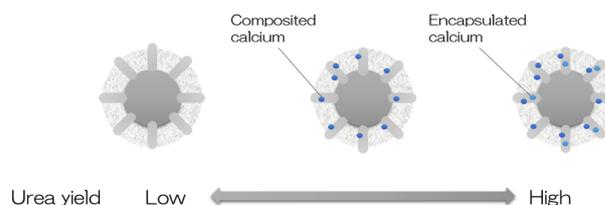
Shekhar Kumar, Lalita Devi and Iti Gupta\*



11089

## Influence of calcium addition on catalytic urea synthesis from recovered ammonia and carbon dioxide in the nanospaces of porous hollow silica spheres

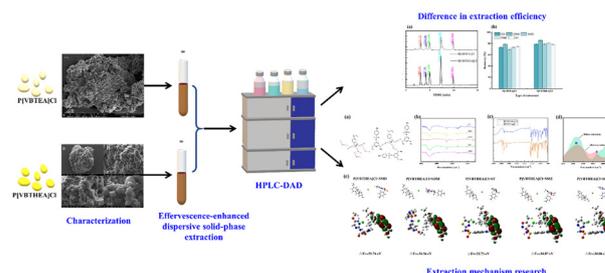
Tetsuo Umegaki,\* Miku Saito, Oto Igarashi, Yuto Mori and Yoshiyuki Kojima



11095

## Quaternary ammonium polymeric ionic liquid-based effervescence-enhanced dispersive solid-phase extraction for determining five sulfonamide antibiotics in reclaimed waters and their underlying interaction mechanisms

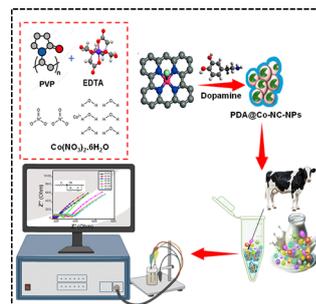
Ming Gao,\* Yu Liu, Su Ma, Sai Ma, Xuedong Wang and Yanyan Li\*



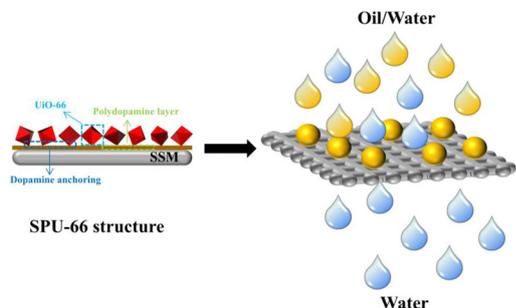
11107

## Development of polydopamine functionalized Co-EDTA complex-based electrochemical aptasensor for precise monitoring of *Pseudomonas aeruginosa*

Bushra Yaqub, Sadaf Sarfraz, Anam Zulfiqar, Tehreem Ul Wara, Samra Rasheed, Shahid Habib Ansari, Sehrish Hanif, Safi Ullah Khan, Mohibullah Shah\* and Naeem Akhtar\*



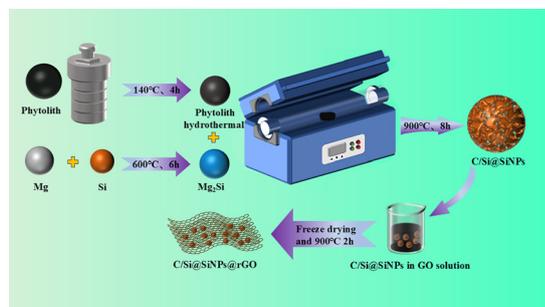
11115



### Superhydrophilic and underwater superoleophobic zirconium-based metal–organic framework composite stainless steel mesh for oil–water separation

Yuxin Zhang, Yuanfeng Fu, Zhenzhong Fan,\* Qilei Tong, Fuzhen Liu, Shanshan Liu and Yifan Zhao

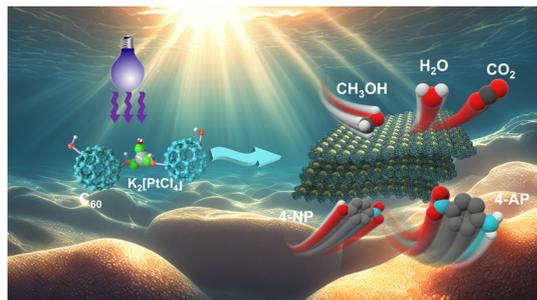
11125



### Magnesium thermal reduction of phytolith for high-performance three-dimensional hierarchical C/Si@Si nanoparticle@reduced graphene oxide composite anodes

Pengbo Xiao, Xiaocheng Li,\* Wenhui Xie, Wenhao Chen, Peng Huang,\* Tengyun Zuo, Qing Zhang, Xi Liu and Dmytro Sidorov

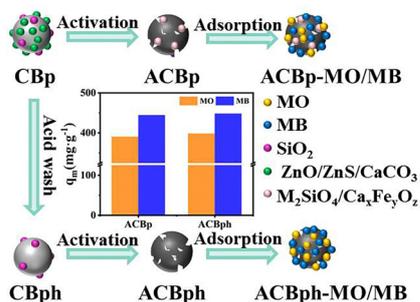
11136



### Photoinduced synthesis of ultrafine Pt nanoparticles under C<sub>60</sub> spatial confinement: application to methanol oxidation and nitrophenol reduction

Liang Xian,\* Shuxin Liu, Jing Ma, Xiaoxia Tian, Wei Li and Zhaomin Liu

11148



### Converting pyrolysis carbon black derived from waste tires into a highly efficient adsorbent for dye wastewater treatment

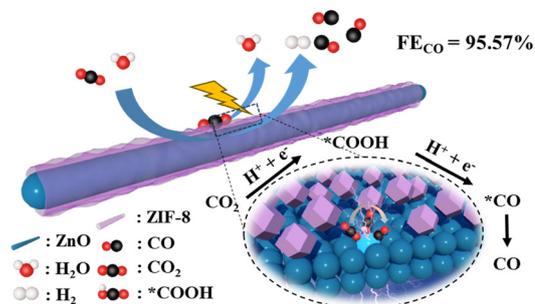
Wenli Liu, Pei Chen, Yanzhi Sun,\* Chuanjin Huang, Yongmei Chen, Jun Guo, Junqing Pan and Pingyu Wan



11160

### ZIF-8-regulated ZnO facilitates the efficient electrocatalytic CO<sub>2</sub> reduction to CO

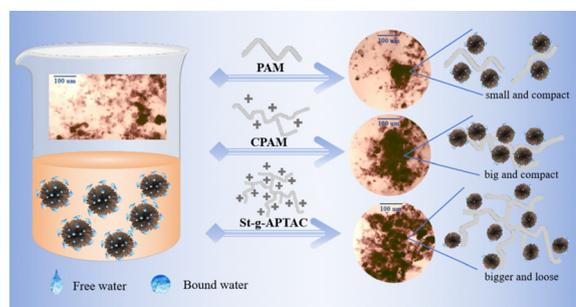
Zhile Xiong,\* Yuewen Chen, Weidong Xie, Jiali Huang, Xiaoli Zhang, Xiya Zhang and Hai Liu



11170

### Study on the preparation and application of a novel functionalized starch-grafted-APTAC flocculant

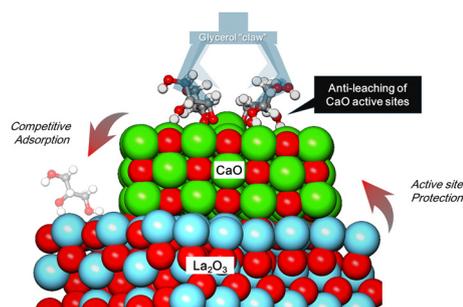
Xiaotian Wang, Yulu Luo, Huakun Ying and Jiangli Lin\*



11180

### Chemical simulation of high-performance CaO/La<sub>2</sub>O<sub>3</sub> catalysts on its anti-leaching property during biodiesel production

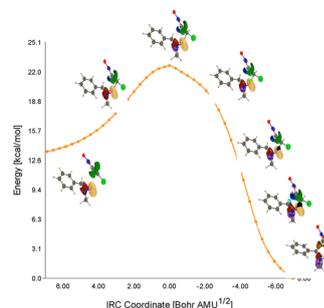
Junying Fu, Gaixiu Yang, Min Lu, Kejing Fang, Pengmei Lv\* and Zuhong Xiong\*



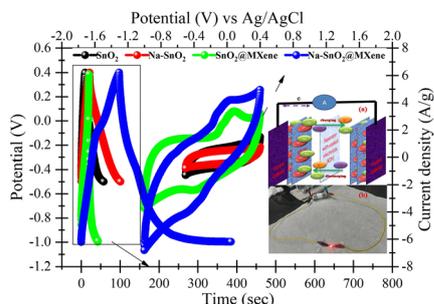
11191

### Mechanistic insights into the regio- and stereoselectivity of [3+2] cycloaddition reactions between *N*-methyl-phenylnitrene and *trans*-1-chloro-2-nitroethylene within the framework of molecular electron density theory

Sofiane Benmetir, Mohamed Chellegui,\* Lakhdar Benhamed, Raghad Mowafak Al-Mokhtar, Raad Nasrullah Salih, Muheb Amjad Algso, Jesus Vicente de Julián-Ortiz and Haydar A. Mohammad-Salim



11203



### SnO<sub>2</sub>/Na-SnO<sub>2</sub>@MXene hybrid electrode materials for supercapacitor applications

Nitin Kumar Gautam, Aditya Sharma,\* Mayora Varshney, Jitendra Pal Singh, Hyun-Joon Shin, Shalendra Kumar,\* Ranjeet Brajpuriya, Byeong-hyeon Lee, Keun-Hwa Chae and Sung-Ok Won

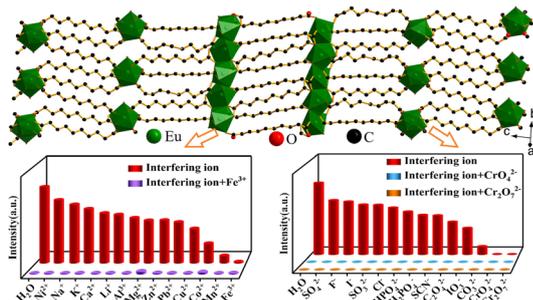
11218



### Nanocellulose/metal-organic framework (MOF) with broad-spectrum UV protection for sunblock creams on earthworms

Hani Nasser Abdelhamid\* and Fatma El-Zahraa A. Abd El-Aziz\*

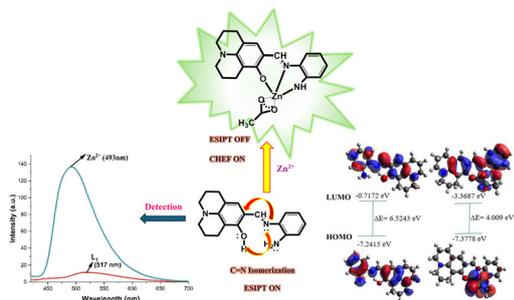
11227



### Two structural types of lanthanide MOFs based on long-chain flexible sebacic acid: synthesis, luminescence, sensing, and magnetic properties

Ying-Hao Jia, Xing Liu, Jian Zhou,\* Qi-Pin Qin\* and Jia-Yin Du

11241



### Julolidine-based Schiff's base as a Zn<sup>2+</sup> chemosensor: experimental and theoretical study

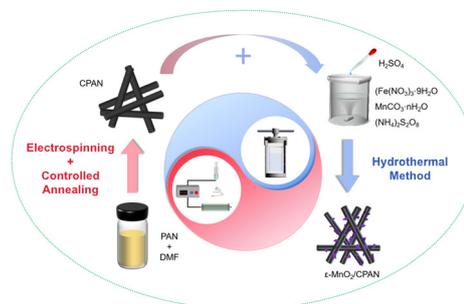
Priyamvada Kumari, Narayan Sahoo, Neha Kumari, Minati Baral and Arun Kumar Padhy\*



11254

### 3D $\varepsilon$ - $\text{MnO}_2$ /electrospun carbon fiber cathodes for aqueous zinc-ion batteries

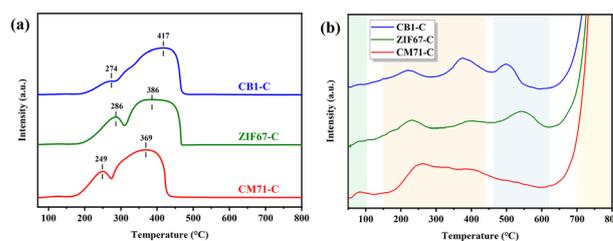
Wenqing Fu, Yichen Hou, Le Zhang, Tianchen Ma, Guangbin Duan\* and Shuhua Yang\*



11261

### Enhancement of the catalytic performance of $\text{Co}_3\text{O}_4$ towards butyl acetate oxidation by weakening the Co–O bond and promoting oxygen activation

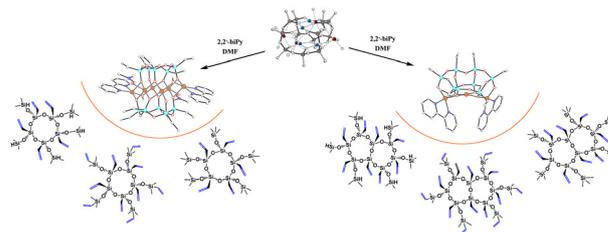
Wenjing Kong, Xueyun Zhong, Ying Yan, Yun Xing, Lei Liu, Chuan Yu, Leneng Yang, Xiaofei Song and Mingli Fu\*



11273

### Synthesis and structure of new vinylcoppersiloxanes and stereoregular organocyclosilsesquioxanes based on them

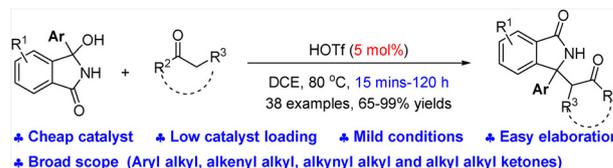
Inga V. Frank, Albina R. Shakirova, Alexander S. Peregudov, Fedor M. Dolgushin, Olga I. Shchegolikhina and Anton A. Anisimov\*



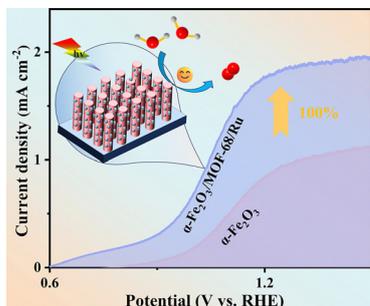
11285

### HOTf-catalyzed dehydrative coupling reaction of 3-hydroxyisoindolinones with alkyl ketones

Kai-Cheng Yang, Lian Liu, Ai-Qiong Jia, Jun-Feng Deng\* and Long Chen\*



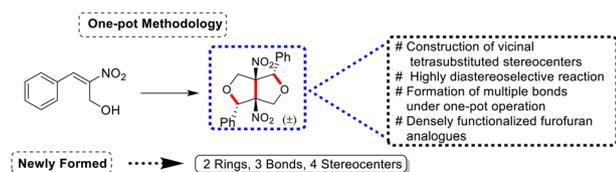
11290



### Engineering Ru-anchored metal–organic frameworks in hematite photoanodes for efficient photoelectrochemical water oxidation

Kaidi Wu, Lin Huang, Xin Song, Dongxu Han, Yuhua Guo, Xinling Zhang, Liguang Yang, Yong Zheng, Zhongyuan Zhou\* and Yunchang Fan\*

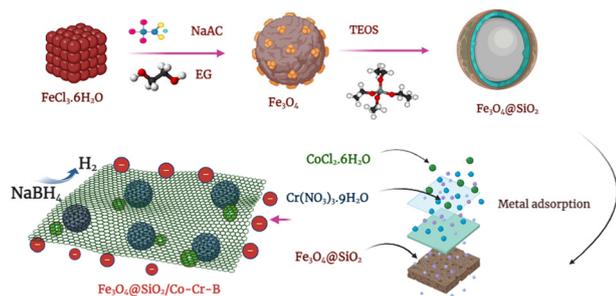
11297



### A concise and highly diastereoselective one-pot synthesis of vicinal tetrasubstituted furofuran analogues

Chinnaiyah Sneka, Balasubramaniyam Manikandan, Subbiah Thamocharan, Olivier Blacque and Subramaniapillai Selva Ganesan\*

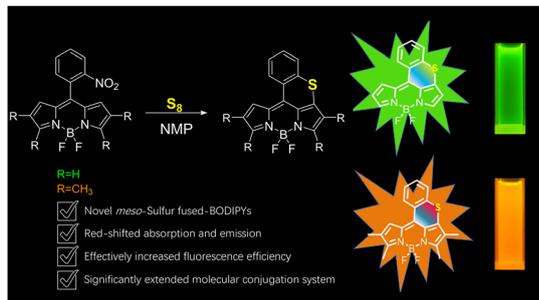
11304



### A novel core–shell Fe<sub>3</sub>O<sub>4</sub>@SiO<sub>2</sub>/Co–Cr–B magnetic catalyst for efficient and reusable hydrogen evolution from NaBH<sub>4</sub> hydrolysis

Housseem Lakhali, Ömer Şahin and Ayhan Abdullah Ceyhan\*

11326



### Sulfur-bridged annulated BODIPYs: synthesis, structure and photophysical properties

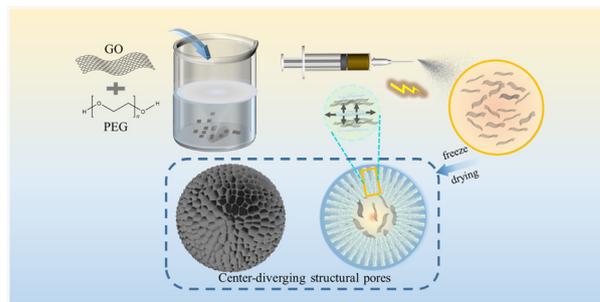
Yongli Zhang, Xiong Fu, Jie Li, Kaiwen Guo, Hanyu Wen, Tingting Guo, Xiangguang Li,\* Yanhua Yang\* and Shulin Gao\*



11334

### PEG/GO phase-change composite aerogel microspheres with highly ordered center-diverging microchannels for the efficient thermal management of electronic devices

Lejuan Cao, Jing Li,\* Pan Li, Wenjun Li, Hongli Liu, Jing Ren and Jiachen Lei



11344

### A novel approach for non-enzymatic determination of urea *via* a screen-printed electrode prepared with a conductive ink containing graphene and nickel oxide

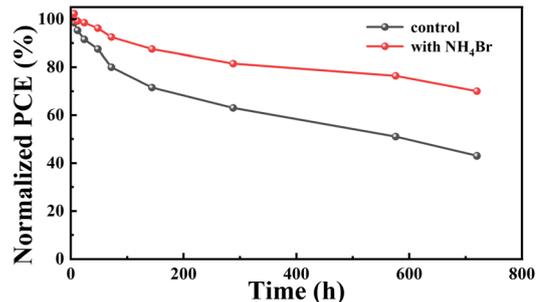
Rabianur Kurteli, Ebrar Dokur, Selen Uruc, Ozge Gorduk and Yu cel Sahin\*



11361

### Enhancement of perovskite solar cell performance in ambient air through NH<sub>4</sub>Br incorporation: improved film quality and open-circuit voltage for nanorod-based devices

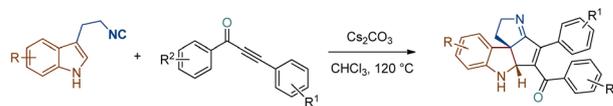
Jiandong Yang, Chunxiao Wang, Xinyu Wang, Jun Wang, Zhenyu Yang, Mingguan Wei, Fen Lin, Wenhui Zhang, Haibin Yang and Wuyou Fu\*



11371

### Diastereoselective reaction to construct polycyclic spiroindolines from 3-(2-isocyanoethyl)indoles and ynones

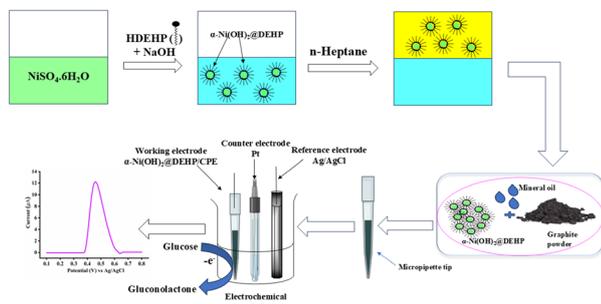
Demin Liang, Da Wu, Jie Shen, Shanya Lu, Jiale Wang, Xiaodong Yan\* and Jian Li\*



- New access to polycyclic spiroindoline
  - sequential Michael addition/intramolecular cyclization as key step
- 22 examples, up to 92% yield



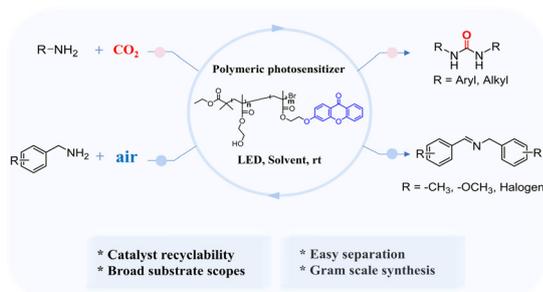
11376



### $\alpha$ -Ni(OH)<sub>2</sub>@DEHP nanoparticles for the fabrication of a non-enzymatic electrochemical glucose sensor

Kainat I. Shaikh, Shabnam Khatoon, Mritunjay S. Tiwari, Arun K. Kadu\* and Suresh D. Pawar\*

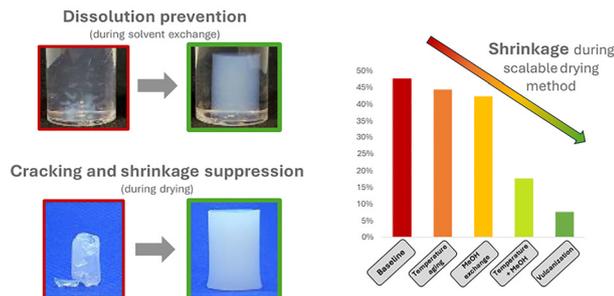
11388



### Xanthenone containing macromolecular photosensitizers as heterogeneous photocatalysts for visible light-promoted synthesis of urea and imine fine chemicals

Ke-Xin Zhang, Jing-Yun Wang, Jing Sun, Yang Chen\* and Ming-Dong Zhou\*

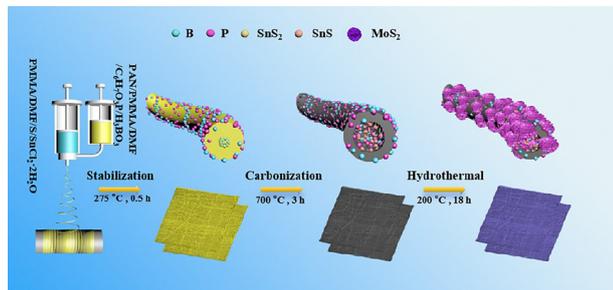
11397



### VTMS-based aerogel structure preservation: the influence of the sol-gel synthesis composition, aging process, and double-crosslinking

Aleksandra M. Pisarek,\* Bartosz Nowak, Ryszard Jobda and Jakub M. Gac

11412



### MoS<sub>2</sub>/SnS@B, P-doped hollow multi-channel carbon fibers for lithium-ion batteries

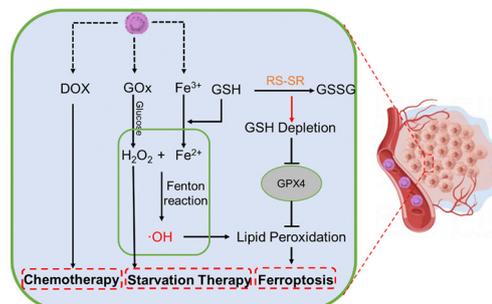
Yujie Wang, Panpan Ding, Fan Zhang, Minglei Wang\* and Anqi Ju\*



11423

### A pH/GSH dual-responsive Fe-based MOF drug carrier for ferroptosis-glycolysis synergistic therapy

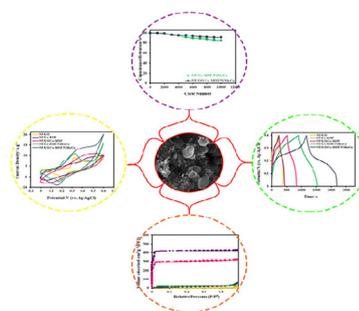
Hanyu Yao, Ruixuan Ji, Xiaoyi Song, Bin Yang, Yin Lv\* and Zhong Wei\*



11434

### Electrochemical study of graphene oxide-integrated Co-MOF/trimetetallic hydroxide nanostructures for next generation supercapacitor applications

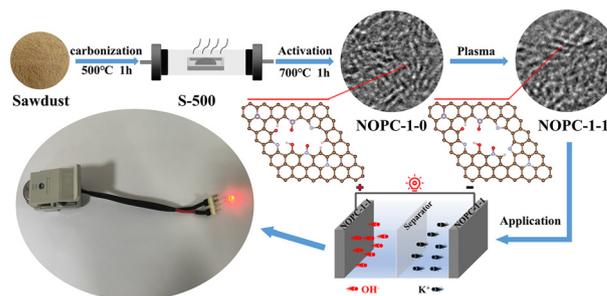
Eman A. Alabdulkarem and Junaid Khan\*



11451

### Sawdust-based N, O and P co-doped porous biochar for high-performance supercapacitors

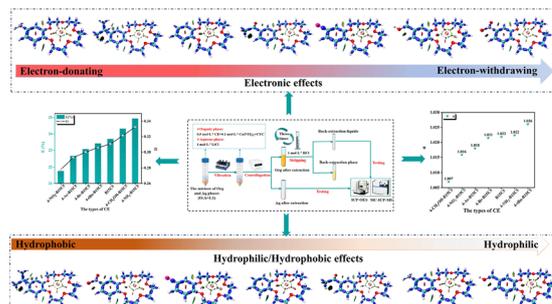
Zongjin Wu, Xiaojing Wang, Dailiu Hu, Nian He, Liangliang Zhao, Chaochuang Yin, Hongyan Pan\*, Zheng Chen\* and Qian Lin\*



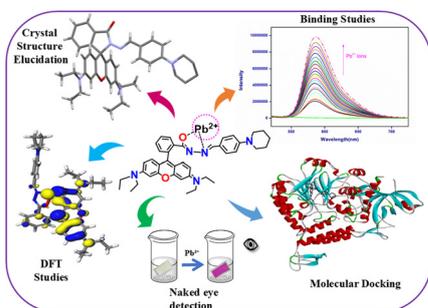
11462

### Selective extraction of lithium isotopes using B15C5 derivatives modified with different groups: experimental and theoretical perspectives

Lianjing Mao, Xiao Li, Pengrui Zhang, Wei Sun, Tianyu Zheng, Chunsen Ye and Jinhe Sun\*



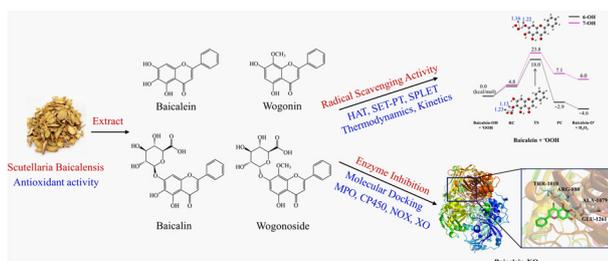
11475



### Multifunctional rhodamine Schiff base sensor for $Pb^{2+}$ : fluorogenic switching, reusability, and structural elucidation through spectroscopic and molecular simulation

Ram Kumar, Bholey Singh,\* Rita Kakkar and Baram Pani\*

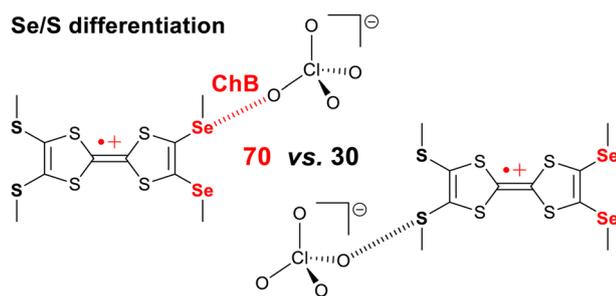
11493



### Antioxidant potential of four flavonoids from *Scutellaria baicalensis*: a computational investigation on radical scavenging activity and enzyme inhibition

Xiao-Qin Lu,\* Pengcheng Ren, Shu Qin, Jindong Li and Xiao-Ni Zhao

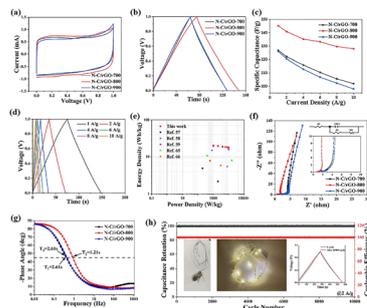
11501



### Activation of chalcogen bonding in tetrathiafulvalene derivatives with Se/S differentiation

Maxime Beau, le-Rang Jeon,\* Olivier Jeannin, Thierry Guizouarn and Marc Fourmigué\*

11509



### Nitrogen-doped coal-based porous carbon and reduced graphene oxide composites for high-performance symmetrical supercapacitors

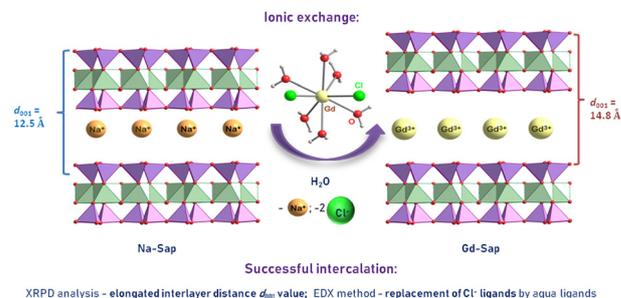
Hongze Zhu, Fuyang Ren, Haoran Pan, Lu Tian, Tao Wang, Jianglong Yu, Jinxiao Dou,\* Dongling Wu\* and Xingxing Chen\*



11520

### Gadolinium chloride hexahydrate and its intercalation into synthetic saponite: structure, characterization and slow magnetic relaxation of the intercalated sample

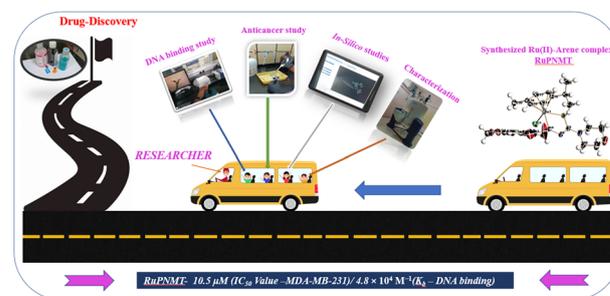
Lenka Krešáková,\* Róbert Tarasenko, Martin Orendáč, Hryhorii Titikov, Erik Čižmár, Juraj Kuchár, Juraj Černák, Ľuboš Jankovič and Jana Madejová



11531

### Functionalized nitro-piperonal thiosemicarbazone based ruthenium(II)–arene complexes for DNA interaction, anticancer and flow cytometry studies

Vishnunarayanan Namboothiri Vadakkedathu Palakkeezhillam, Jebiti Haribabu, K. S. Karthik, Vaishnu Suresh Kumar, Vipin Manakkadan, Puthiyavalappil Rasin, Mohith Garg, Arunachalam Arulraj, Daniel Moraga and Anandaram Sreekanth\*



11548

### Catalytic selectivity in hexafluoropropylene trimerization using tailored nucleophilic ionic liquids

Huiyao Yang, Bingxi Song, Peihong Zhang, Qijie Zhu, Fu Ding, Yaofeng Wang, Guliang Liu, Yanyan Diao and Hongyan Wang\*

