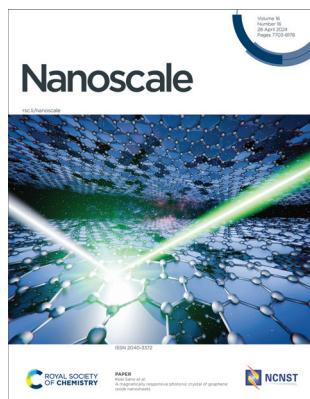


## IN THIS ISSUE

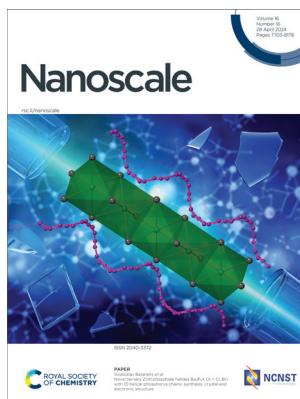
ISSN 2040-3372 CODEN NANOHL 16(16) 7703–8178 (2024)



### Cover

See Koki Sano *et al.*,  
pp. 7908–7915.

Image reproduced by  
permission of Koki Sano from  
*Nanoscale*, 2024, **16**, 7908.



### Inside cover

See Sviatoslav Baranets *et al.*,  
pp. 7916–7925.

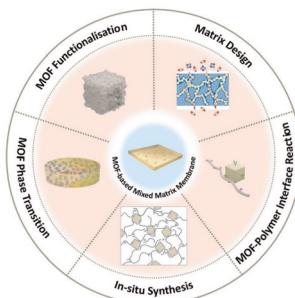
Image reproduced by  
permission of  
Sviatoslav Baranets from  
*Nanoscale*, 2024,  
**16**, 7916.

## REVIEWS

7716

### Recent advances in the interfacial engineering of MOF-based mixed matrix membranes for gas separation

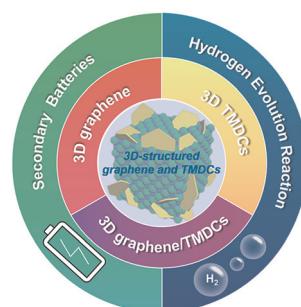
Shuwen Yu, Conger Li, Shuke Zhao, Milton Chai, Jingwei Hou\* and Rijia Lin\*



7734

### Chemical vapor deposition growth of graphene and other nanomaterials with 3D architectures towards electrocatalysis and secondary battery-related applications

You Peng, Jingyi Hu, Yahuan Huan and Yanfeng Zhang\*



# 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)

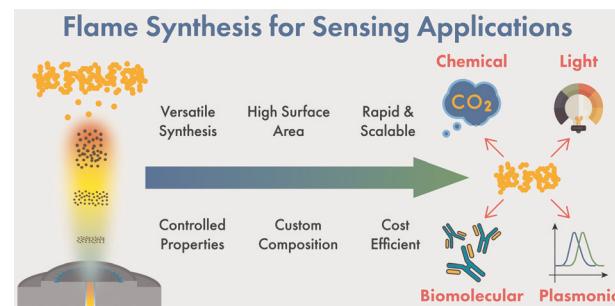
Fundamental questions  
Elemental answers

## REVIEWS

7752

**Advances in flame synthesis of nano-scale architectures for chemical, biomolecular, plasmonic, and light sensing**

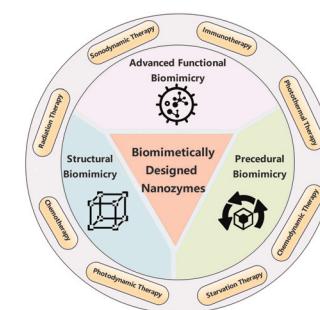
Zain Ul Abideen, Waqas Ul Arifeen and Antonio Tricoli\*



7786

**Nanozymes with biomimetically designed properties for cancer treatment**

Ke Xu, Yujie Cui, Bin Guan, Linlin Qin, Dihao Feng, Abudumijiti Abuduwayiti, Yimu Wu, Hao Li, Hongfei Cheng\* and Zhao Li\*

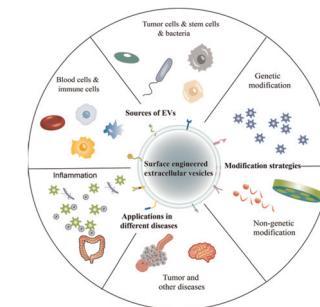


## MINIREVIEWS

7825

**Recent advances in therapeutic engineered extracellular vesicles**

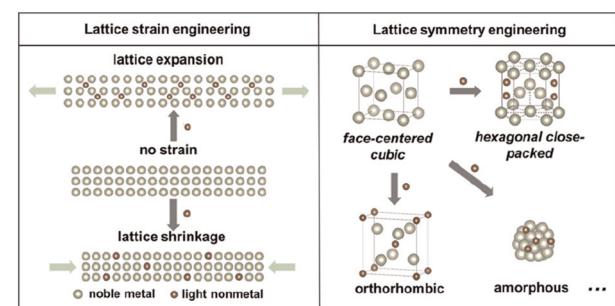
Chenlu Yao, Hong Zhang\* and Chao Wang\*



7841

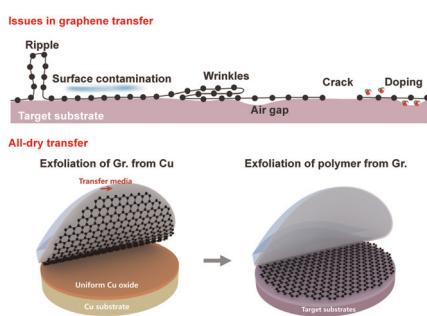
**Lattice engineering of noble metal-based nanomaterials via metal–nonmetal interactions for catalytic applications**

Long Zheng, Lei Xu, Ping Gu and Ye Chen\*



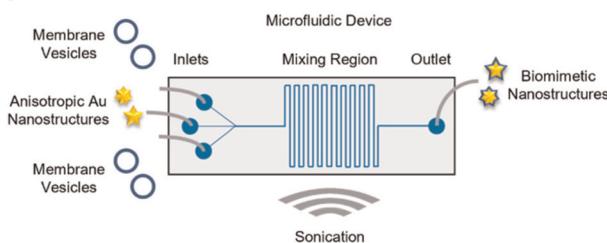
## MINIREVIEWS

7862

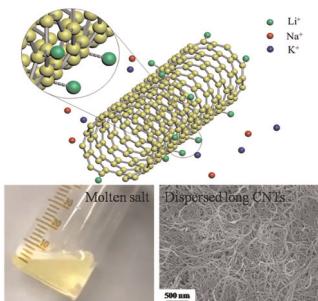


## COMMUNICATIONS

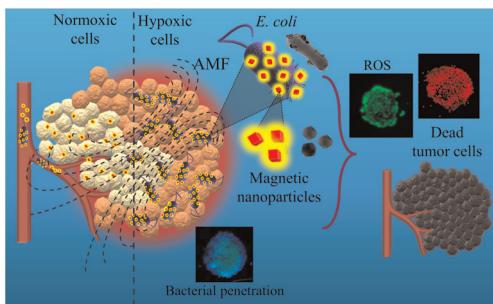
7874



7884



7892



## Recent trends in the transfer of graphene films

Yaqi Zhu, Zhuofeng Shi, Yixuan Zhao, Saiyu Bu, Zhaoning Hu, Junhao Liao, Qi Lu, Chaofan Zhou, Bingbing Guo, Mingpeng Shang, Fangfang Li, Zhiying Xu, Jialin Zhang, Qin Xie, Chunhu Li, Pengzhan Sun, Boyang Mao, Xiaodong Zhang,\* Zhongfan Liu\* and Li Lin\*

## Microfluidic-assisted formulation of cell membrane-camouflaged anisotropic nanostructures

Kenry

Stable dispersion of carbon nanotubes in a molten salt of  $\text{KNO}_3\text{--NaNO}_3\text{--NaNO}_2\text{--LiNO}_3\text{--LiOH}$ 

Dongyu Guo, Yuying Li, Tao Chen, Hongyan Li, Liang Han and Xilai Jia\*

## Self-propelling bacteria-based magnetic nanoparticles (BacMags) for targeted magnetic hyperthermia therapy against hypoxic tumors

Tashmeen Kaur and Deepika Sharma\*

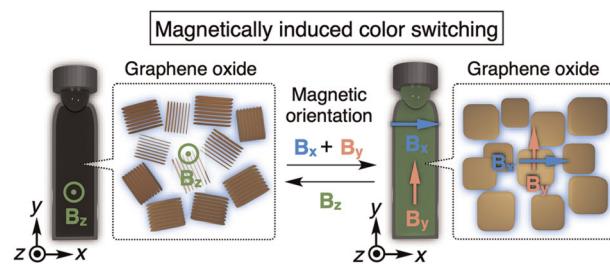


## PAPERS

7908

**A magnetically responsive photonic crystal of graphene oxide nanosheets**

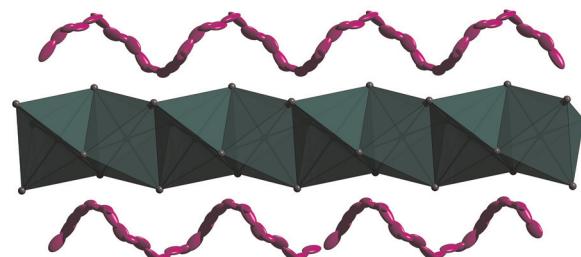
Daisuke Ogawa, Tomoki Nishimura, Yuta Nishina and Koki Sano\*



7916

**Novel ternary Zintl phosphide halides  $\text{Ba}_3\text{P}_5\text{X}$  ( $\text{X} = \text{Cl}, \text{Br}$ ) with 1D helical phosphorus chains: synthesis, crystal and electronic structure**

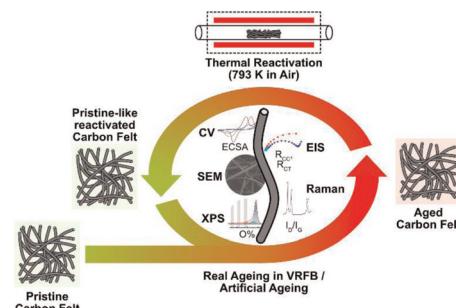
Mohd Ishtiyak, S. M. Gayomi K. Samarakoon, Thimira Kandababage Don, Spencer R. Watts and Sviatoslav Baranets\*



7926

**Extending the lifetime of vanadium redox flow batteries by reactivation of carbon electrode materials**

Muhammad Adeel Ashraf, Stylianos Daskalakis, Matthias Kogler, Markus Ostermann, Soniya Gahlawat, Seohee Son, Pavel Mardilovich, Markus Valtiner and Christian M. Pichler\*



7937

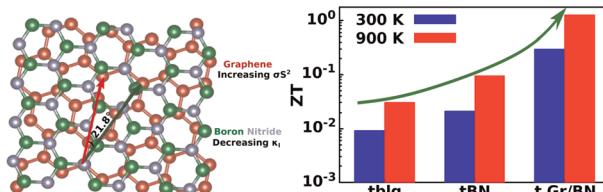
**Stoichiometrically optimized  $e_g$  orbital occupancy of Ni–Co oxide catalysts for Li–air batteries**

Shadeepa Karunaratne, Yasun Y. Kannangara, Chirag R. Ratwani, Chanaka Sandaruwan, W. P. S. L. Wijesinghe, Ali Reza Kamali and Amr M. Abdelkader\*



## PAPERS

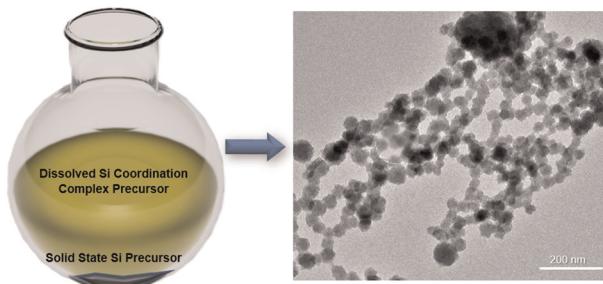
7951



## Enhanced thermoelectric performance of a wide-bandgap twisted heterostructure of graphene and boron nitride

Naveen Kumar and Chandan Bera\*

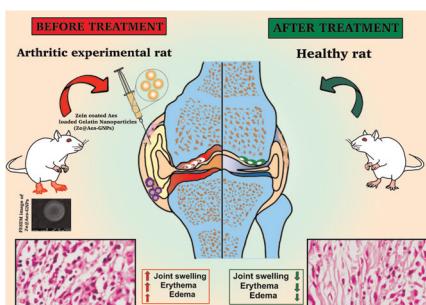
7958



## Size-tunable silicon nanoparticles synthesized in solution via a redox reaction

Megan A. Parker, Maria Letizia De Marco, Alexander Castro-Grijalba, Anissa Ghoridi, David Portehault, Stanislav Pechev, Elizabeth A. Hillard, Sabrina Lacomme, Aurélie Bessière, Frédérique Cunin, Patrick Rosa,\* Mathieu Gonidec\* and Glenna L. Drisko\*

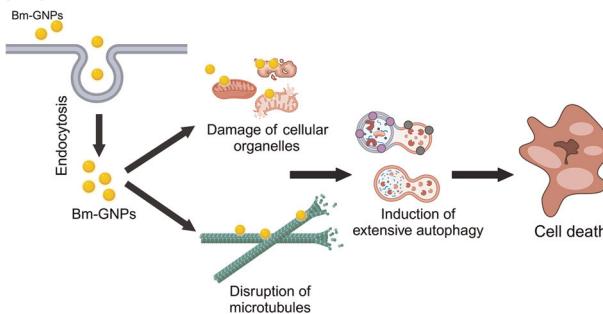
7965



## Biomaterial-based combinatorial approach of aescin-comprised zein-coated gelatin nanoparticles alleviates synovial inflammation in experimental inflammatory arthritis

Chandrashekhar Jori, Md. Meraj Ansari, Anas Ahmad, Nemat Ali, Syed Shadab Raza and Rehan Khan\*

7976



## Induction of autophagy-dependent and caspase- and microtubule-acetylation-independent cell death by phytochemical-stabilized gold nanopolygons in colorectal adenocarcinoma cells

Kimaya Meher, Gudapureddy Radha and Manu Lopus\*

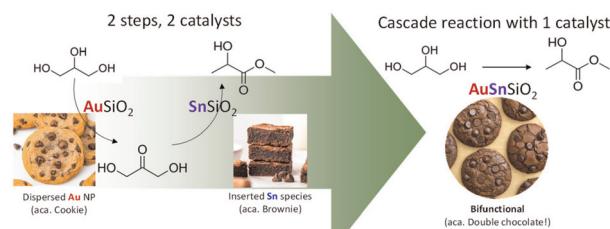


## PAPERS

7988

**Bifunctional Au–Sn–SiO<sub>2</sub> catalysts promote the direct upgrading of glycerol to methyl lactate**

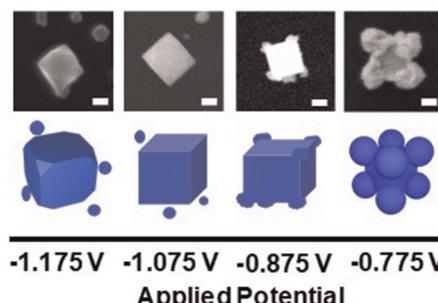
Margot Van der Verren, Anna Corrias, Vit Vykoukal, Ales Styskalik, Carmela Aprile and Damien P. Debecker\*



8002

**Bridging colloidal and electrochemical syntheses of metal nanocrystals with seeded electrodeposition for tracking single nanocrystal growth**

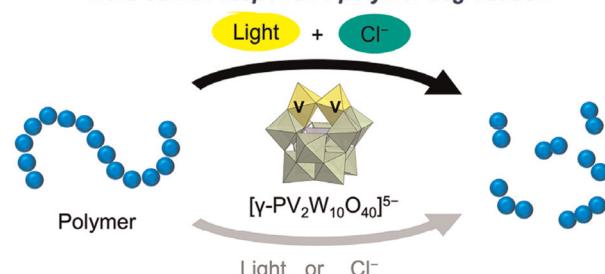
Ekta Verma, Myung-Hoon Choi, Nabojit Kar, Lane A. Baker and Sara E. Skrabalak\*



8013

**Multi-stimuli-responsive polymer degradation by polyoxometalate photocatalysis and chloride ions**

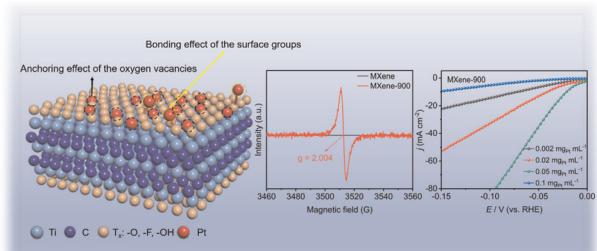
Chen Gu, Chifeng Li, Noriyuki Minezawa, Susumu Okazaki,\* Kazuya Yamaguchi and Kosuke Suzuki\*

*Multi-stimuli-responsive polymer degradation*

8020

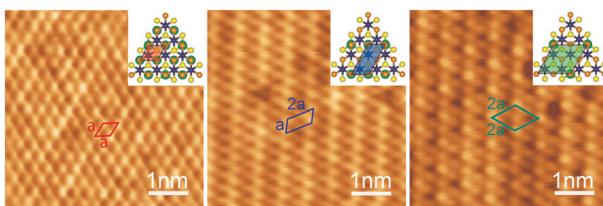
**Pt nanoparticles anchored by oxygen vacancies in MXenes for efficient electrocatalytic hydrogen evolution reaction**

Qin Zhao, Yue Zhang, Changwang Ke, Weilin Yang, Jianshu Yue, Xiaofei Yang and Weiping Xiao\*



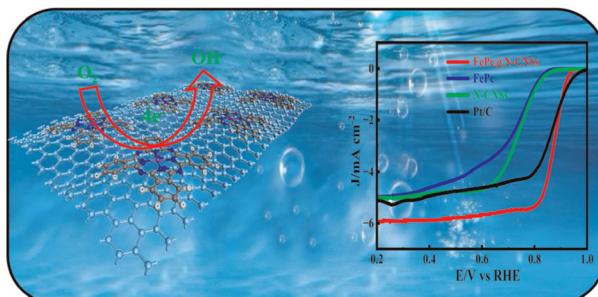
## PAPERS

8028


**Microscopy aided detection of the self-intercalation mechanism and *in situ* electronic properties in chromium selenide**

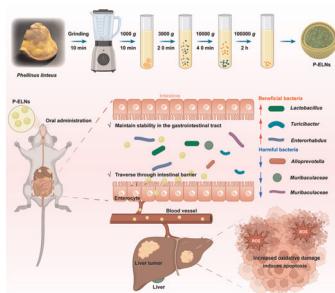
Jinding Zhang, Yulong Xiao, Kaihui Li, Ying Chen, Songlong Liu, Wenjie Luo, Xueying Liu, Shiying Liu, Yiliu Wang, Si-Yu Li\* and Anlian Pan\*

8036


**Regulating the frontier orbital of iron phthalocyanine with nitrogen doped carbon nanosheets for improving oxygen reduction activity**

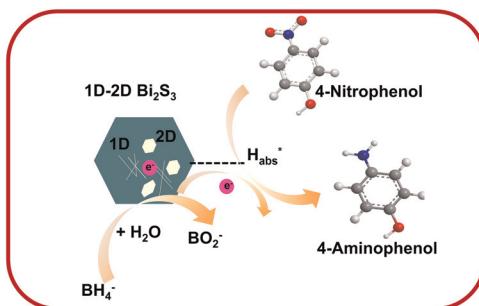
Xilin Zhang, Rui Zheng, Qingfang Chang,\* Zhongjun Ma\* and Zongxian Yang\*

8046


**Oral exosome-like nanovesicles from *Phellinus linteus* suppress metastatic hepatocellular carcinoma by reactive oxygen species generation and microbiota rebalancing**

Menghang Zu, Ga Liu, Nanxi Chen, Li Chen, Qiang Gao, Rui L. Reis, Subhas C. Kundu, Meilan Jin,\* Bo Xiao\* and Xiaoxiao Shi\*

8060


**Deciphering the mechanistic insights of 4-nitrophenol reduction catalyzed by a 1D–2D Bi2S3 nanostructured catalyst**

Bhagirath Mahto, Ashok Barhoi, Haider Ali and Sahid Hussain\*

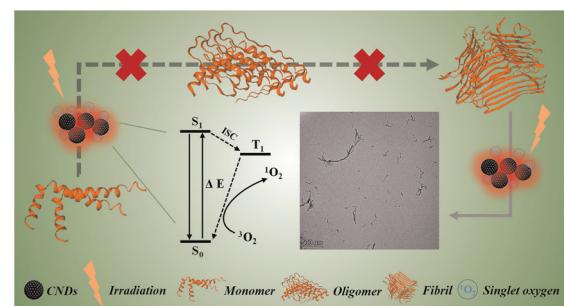


## PAPERS

8074

**Novel photocatalytic carbon dots: efficiently inhibiting amyloid aggregation and quickly disaggregating amyloid aggregates**

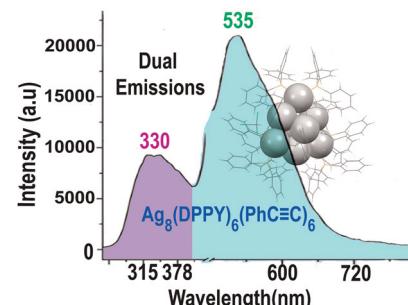
Xu Shao, Chao Wang, Chaoli Wang, Mengyao Bai, Tongtong Hou, Xin Wang, Chaoren Yan,\* Ping Guan\* and Xiaoling Hu\*



8090

**A luminescent  $\text{Ag}_8(\text{DPPY})_6(\text{PhC}\equiv\text{C})_6$  cluster with a triangular superatomic  $\text{Ag}_8$  core**

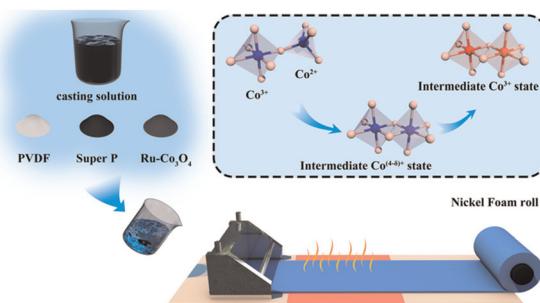
Blessing D. Peter, Wei Pei, Gaya N. Andrew, Si Zhou\* and Zhixun Luo\*



8096

**Ruthenium single-atom doping-driven modulation of  $\text{Co}_3\text{O}_4$  spinel tetrahedral site 3d-orbital occupancy in lithium–oxygen batteries**

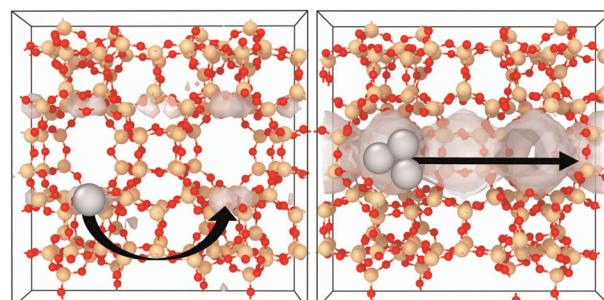
Yining Fan, Ting Li, Bin Li, Anjun Hu,\* Dongfen Li, Kun Li, Borui Yang, Yu Pan, Jing Liu\* and Jianping Long\*



8108

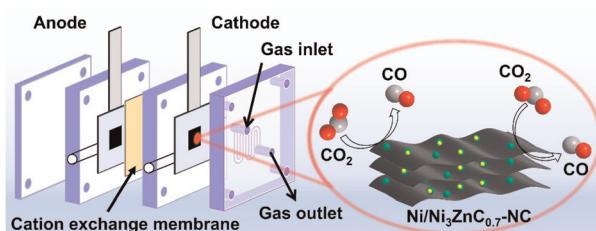
**Migration of zeolite-encapsulated subnanometre platinum clusters *via* reactive neural network potentials**

Christopher J. Heard,\* Lukáš Grajciar and Andreas Erlebach



## PAPERS

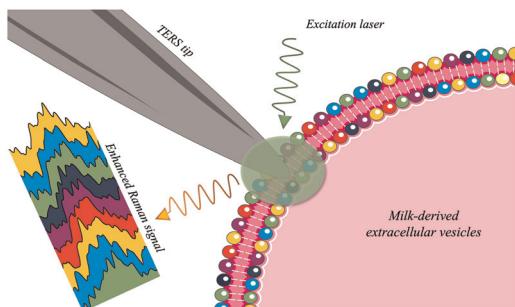
8119



**Three-dimensional N-doped carbon nanosheets loaded with heterostructured Ni/Ni<sub>3</sub>ZnC<sub>0.7</sub> nanoparticles for selective and efficient CO<sub>2</sub> reduction**

Li Liao, Chunguang Jia, Songjiang Wu, Shenjie Yu, Zhenhai Wen\* and Suqin Ci\*

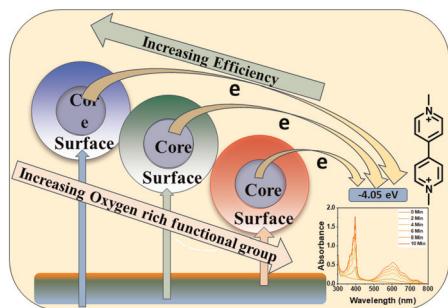
8132



**Toward the nanoscale chemical and physical probing of milk-derived extracellular vesicles using Raman and tip-enhanced Raman spectroscopy**

Luca Buccini, Anacleto Proietti, Giancarlo La Penna, Chiara Mancini, Francesco Mura, Stefano Tacconi, Luciana Dini, Marco Rossi and Daniele Passeri\*

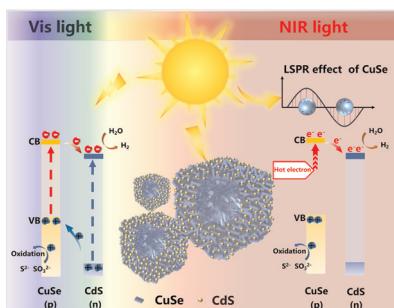
8143



**Delineating the core and surface state heterogeneity of carbon dots during electron transfer**

Umarfaruk S. Sayyad, Himanshu Bhatt, Hirendra N. Ghosh and Somen Mondal\*

8151



**Hollow cubic CuSe@CdS with tunable size for plasmon-induced Vis-NIR driven photocatalytic properties**

Ning Li,\* Linping Li, Yanping Qiu, Xuhui Liu, Jiatong Zhang, Yangqin Gao and Lei Ge\*



## PAPERS

8162

**Electrochemical control of the morphological evolution of PEDOT on a Ni–Co(OH)<sub>2</sub>/carbon cloth surface to modulate the performance of wearable H<sub>2</sub>O<sub>2</sub> sensors**

Xinmeng Zhang,\* Mingyue Bai, Lei Ge and Yuanyuan Yao

