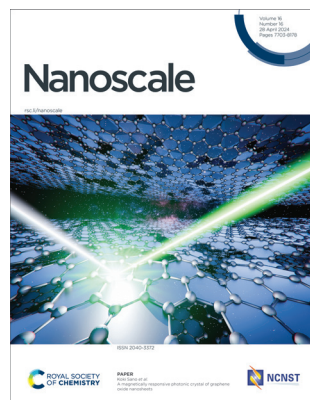


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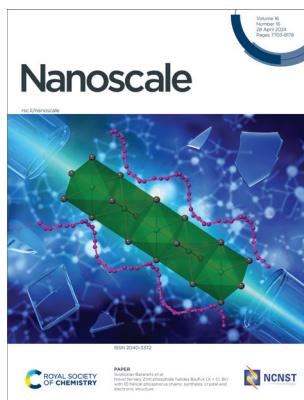
ISSN 2040-3372 CODEN NANOHL 16(16) 7703–8178 (2024)



### Cover

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

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### Inside cover

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

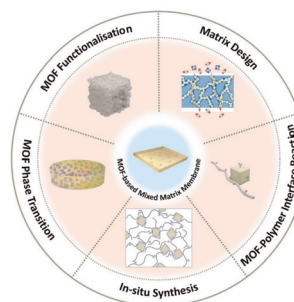
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### Recent advances in the interfacial engineering of MOF-based mixed matrix membranes for gas separation

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



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### 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\*



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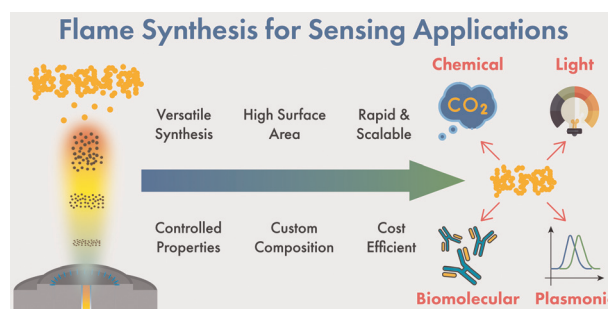
**Fundamental questions  
Elemental answers**

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

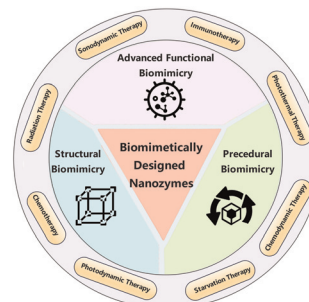
Zain Ul Abideen, Waqas Ul Arifeen and Antonio Tricoli\*



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## 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\*

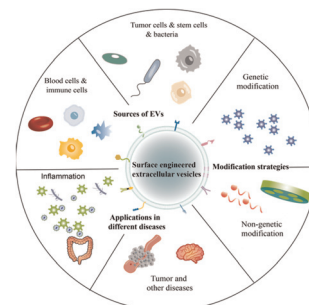


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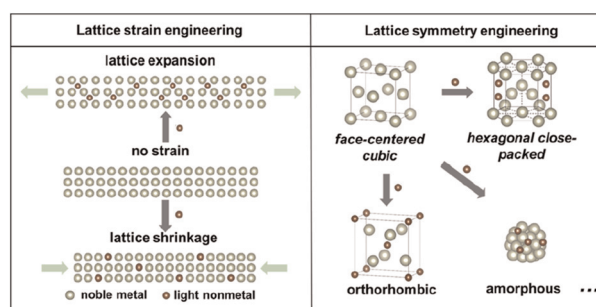
Chenlu Yao, Hong Zhang\* and Chao Wang\*



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

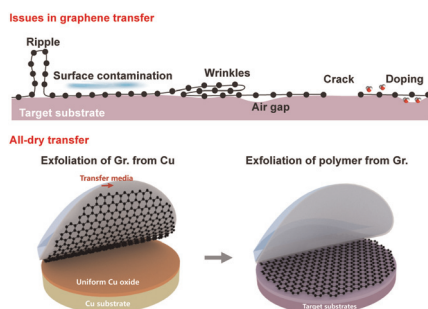
Long Zheng, Lei Xu, Ping Gu and Ye Chen\*





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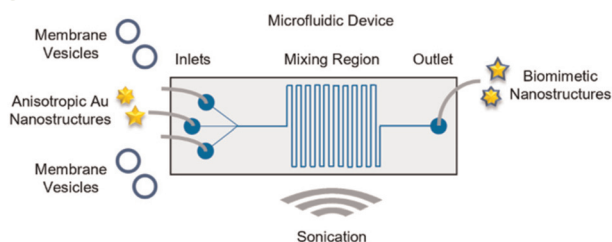


## Recent trends in the transfer of graphene films

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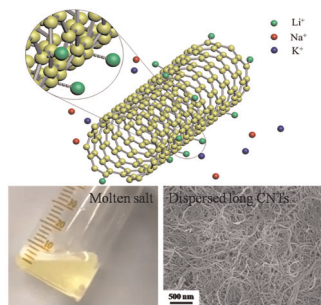
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## Microfluidic-assisted formulation of cell membrane-camouflaged anisotropic nanostructures

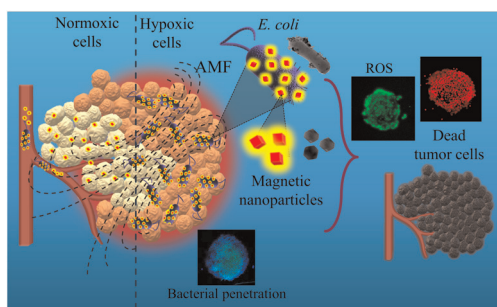
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Stable dispersion of carbon nanotubes in a molten salt of  $\text{KNO}_3\text{--NaNO}_3\text{--NaNO}_2\text{--LiNO}_3\text{--LiOH}$ 

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

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

Tashmeen Kaur and Deepika Sharma\*

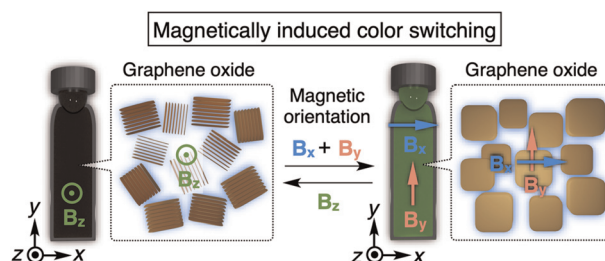


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### A magnetically responsive photonic crystal of graphene oxide nanosheets

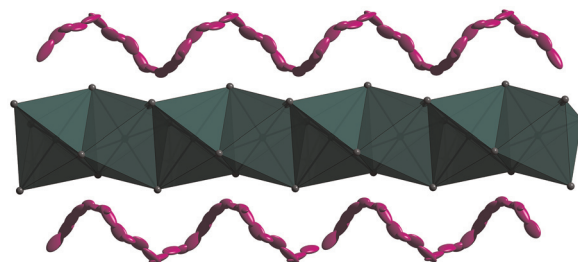
Daisuke Ogawa, Tomoki Nishimura, Yuta Nishina and Koki Sano\*



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### 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

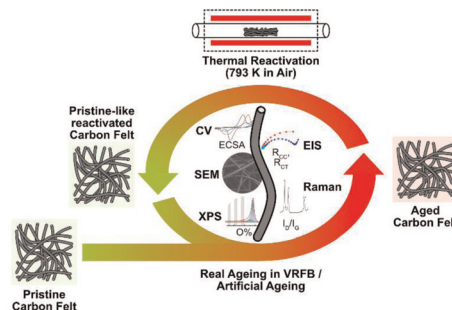
Mohd Ishtiyak, S. M. Gayomi K. Samarakoon, Thimira Kandabadge Don, Spencer R. Watts and Sviatoslav Baranets\*



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

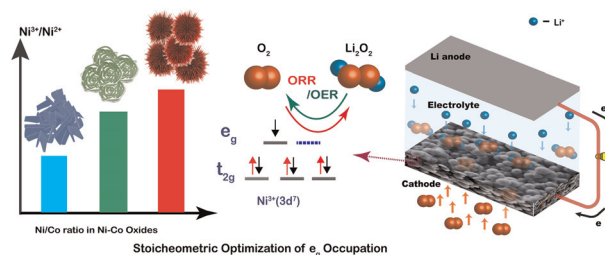
Muhammad Adeel Ashraf, Stylianos Daskalakis, Matthias Kogler, Markus Ostermann, Soniya Gahlawat, Seohee Son, Pavel Mardilovich, Markus Valtiner and Christian M. Pichler\*



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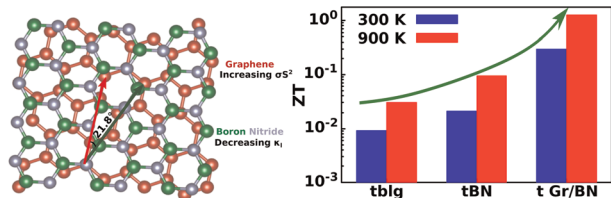
### Stoichiometrically optimized $e_g$ orbital occupancy of Ni–Co oxide catalysts for Li–air batteries

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



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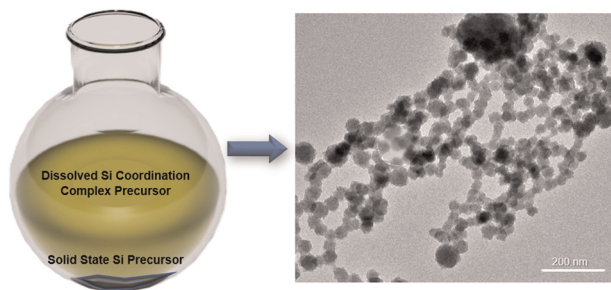
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### Enhanced thermoelectric performance of a wide-bandgap twisted heterostructure of graphene and boron nitride

Naveen Kumar and Chandan Bera\*

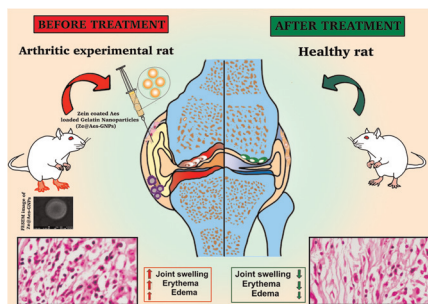
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### Size-tunable silicon nanoparticles synthesized in solution *via* a redox reaction

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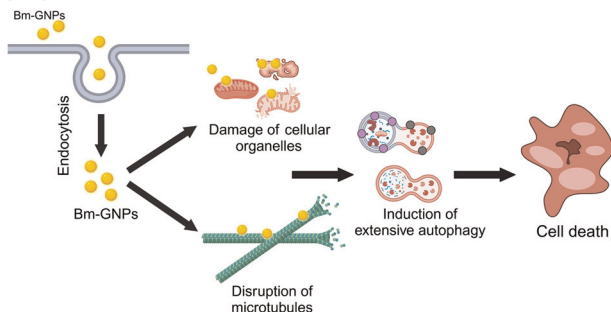
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### Biomaterial-based combinatorial approach of aescin-comprised zein-coated gelatin nanoparticles alleviates synovial inflammation in experimental inflammatory arthritis

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### 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\*

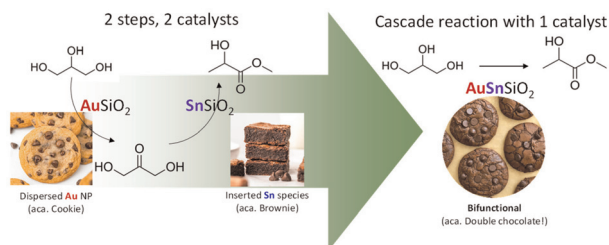


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**Bifunctional Au–Sn–SiO<sub>2</sub> catalysts promote the direct upgrading of glycerol to methyl lactate**

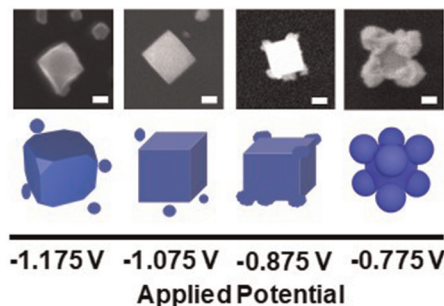
Margot Van der Verren, Anna Corrias, Vit Vykoukal, Ales Styskalik, Carmela Aprile and Damien P. Debecker\*



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

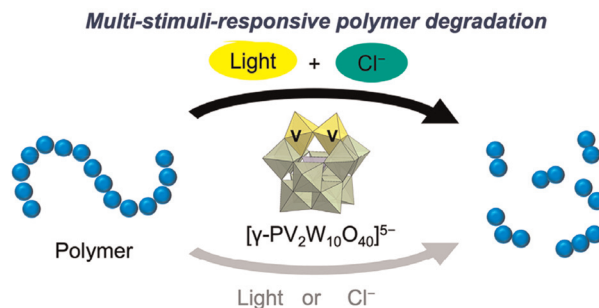
Ekta Verma, Myung-Hoon Choi, Nabojit Kar, Lane A. Baker and Sara E. Skrabalak\*



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

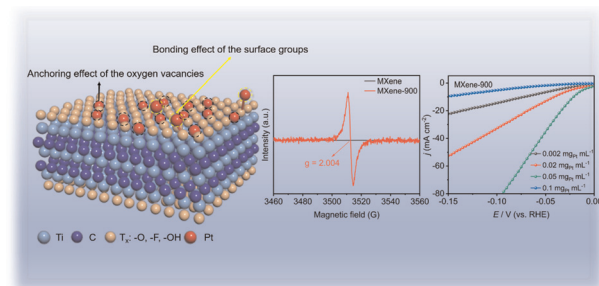
Chen Gu, Chifeng Li, Noriyuki Minezawa, Susumu Okazaki,\* Kazuya Yamaguchi and Kosuke Suzuki\*



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

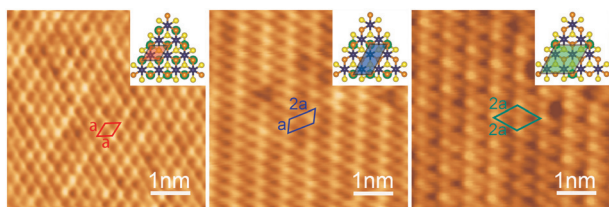
Qin Zhao, Yue Zhang, Changwang Ke, Weilin Yang, Jianshu Yue, Xiaofei Yang and Weiping Xiao\*





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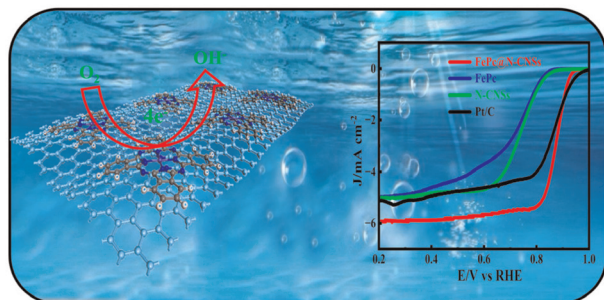
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### Microscopy aided detection of the self-intercalation mechanism and *in situ* electronic properties in chromium selenide

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

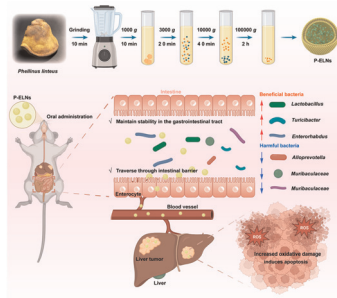
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### Regulating the frontier orbital of iron phthalocyanine with nitrogen doped carbon nanosheets for improving oxygen reduction activity

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

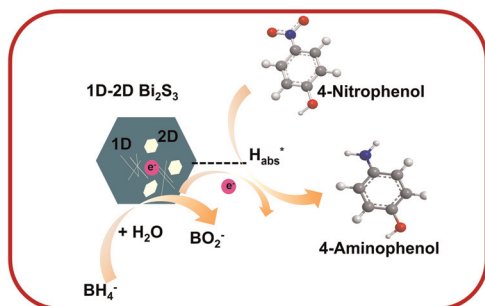
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### Oral exosome-like nanovesicles from *Phellinus linteus* suppress metastatic hepatocellular carcinoma by reactive oxygen species generation and microbiota rebalancing

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

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### Deciphering the mechanistic insights of 4-nitrophenol reduction catalyzed by a 1D–2D Bi<sub>2</sub>S<sub>3</sub> nanostructured catalyst

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



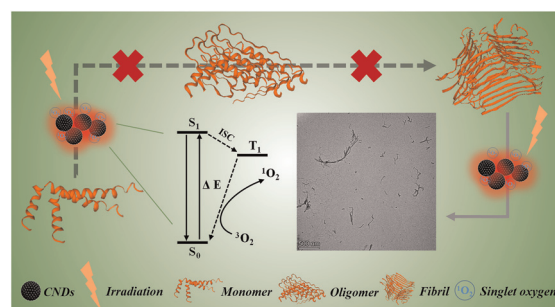


## PAPERS

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

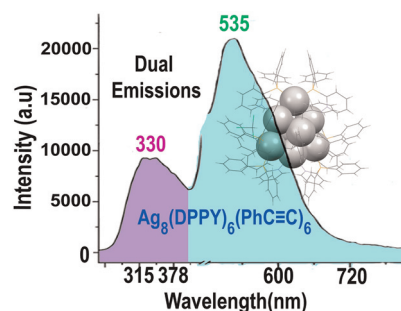
Xu Shao, Chao Wang, Chaoli Wang, Mengyao Bai, Tongtong Hou, Xin Wang, Chaoren Yan,\* Ping Guan\* and Xiaoling Hu\*



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

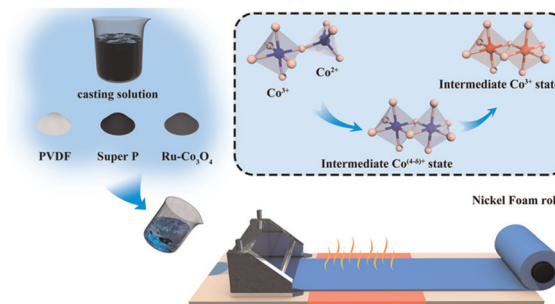
Blessing D. Peter, Wei Pei, Gaya N. Andrew, Si Zhou\* and Zhixun Luo\*



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

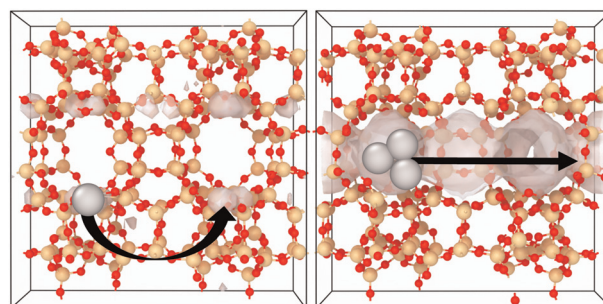
Yining Fan, Ting Li, Bin Li, Anjun Hu,\* Dongfen Li, Kun Li, Borui Yang, Yu Pan, Jing Liu\* and Jianping Long\*



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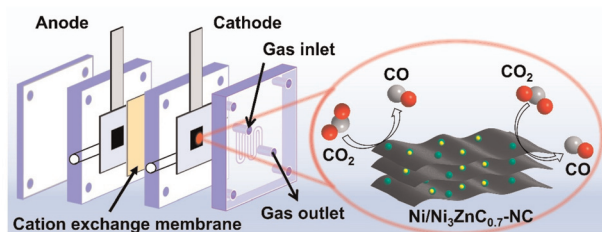
### Migration of zeolite-encapsulated subnanometre platinum clusters *via* reactive neural network potentials

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



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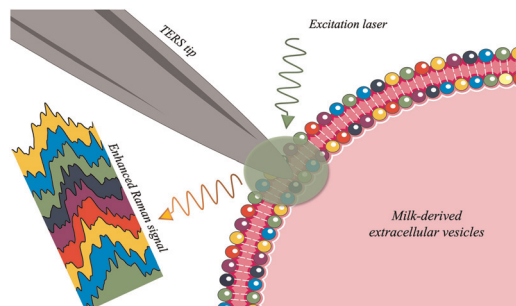
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### Three-dimensional N-doped carbon nanosheets loaded with heterostructured Ni/Ni<sub>3</sub>ZnC<sub>0.7</sub> nanoparticles for selective and efficient CO<sub>2</sub> reduction

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

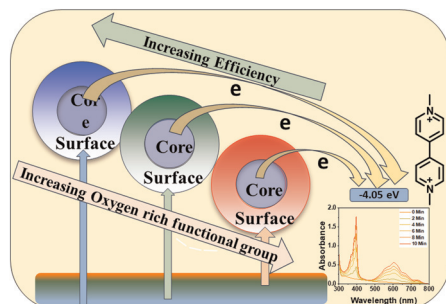
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### Toward the nanoscale chemical and physical probing of milk-derived extracellular vesicles using Raman and tip-enhanced Raman spectroscopy

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

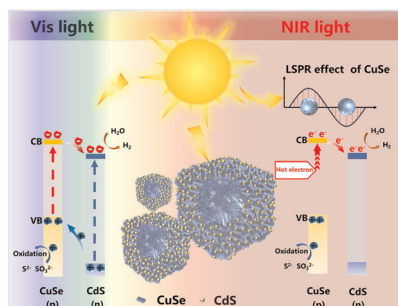
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### Delineating the core and surface state heterogeneity of carbon dots during electron transfer

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

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### 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\*



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

