

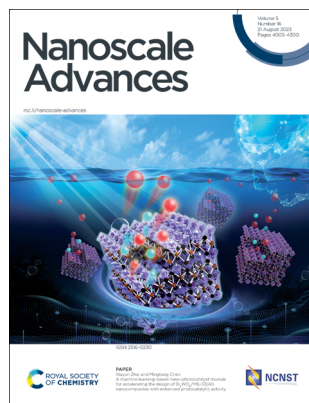
# Nanoscale Advances

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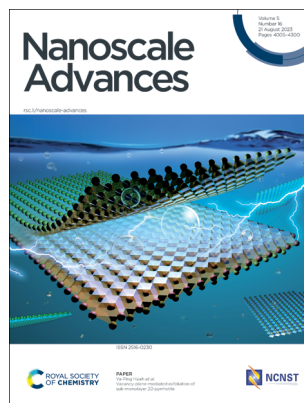
## IN THIS ISSUE

ISSN 2516-0230 CODEN NAADAI 5(16) 4005–4300 (2023)



### Cover

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### Inside cover

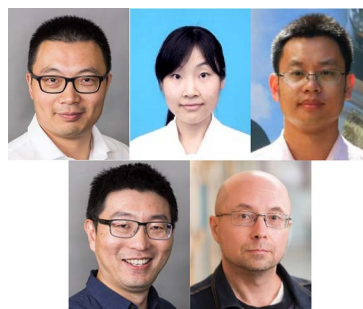
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## EDITORIAL

4015

### Introduction to Supercapacitors

Zhaojun Han, Ruopian Fang, Dewei Chu, Da-Wei Wang and Kostya (Ken) Ostrikov



## REVIEWS

4018

### Recent advances of nanocrystals in cancer theranostics

Devyani Yenurkar, Malay Nayak and Sudip Mukherjee\*



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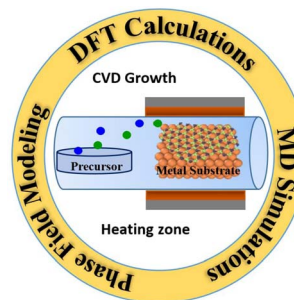


## REVIEWS

4041

### Growth mechanisms of monolayer hexagonal boron nitride (*h*-BN) on metal surfaces: theoretical perspectives

Md. Sherajul Islam,\* Abdullah Al Mamun Mazumder, Minhaz Uddin Sohag, Md. Mosarof Hossain Sarkar, Catherine Stampfl and Jeongwon Park

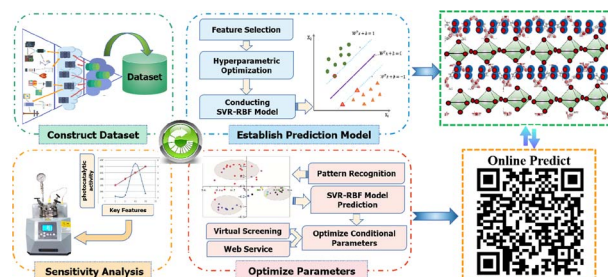


## PAPERS

4065

### A machine learning-based nano-photocatalyst module for accelerating the design of Bi<sub>2</sub>WO<sub>6</sub>/MIL-53(Al) nanocomposites with enhanced photocatalytic activity

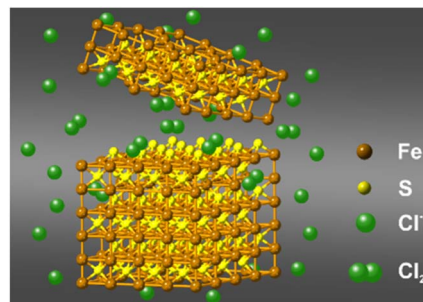
Xiuyun Zhai\* and Mingtong Chen



4074

### Vacancy-plane-mediated exfoliation of sub-monolayer 2D pyrrhotite

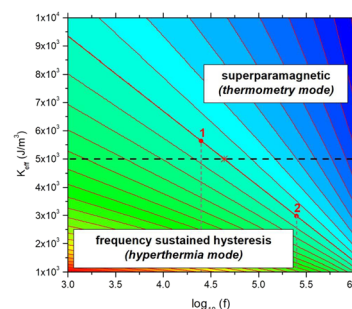
Jian-Jhang Lee, Yi-Hung Chu, Zhi-Long Yen, Jeyavelan Muthu, Chu-Chi Ting, Ssu-Yen Huang, Mario Hofmann and Ya-Ping Hsieh\*



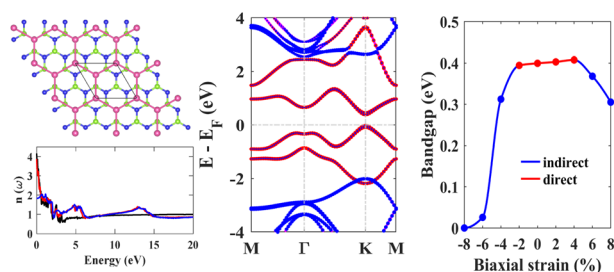
4080

### Multifunctional effects in magnetic nanoparticles for precision medicine: combining magnetic particle thermometry and hyperthermia

Gabriele Barrera,\* Paolo Allia and Paola Tiberto



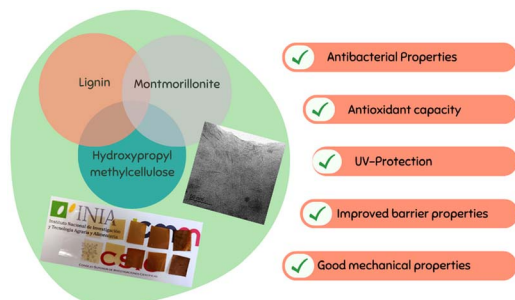
4095



### Numerical characterization of the electronic and optical properties of plumbene/hBN heterobilayer using first-principles study

Nishat Tasnim Hiramony, Tanshia Tahreen Tanisha, Sumaiya Jahan Tabassum and Samia Subrina\*

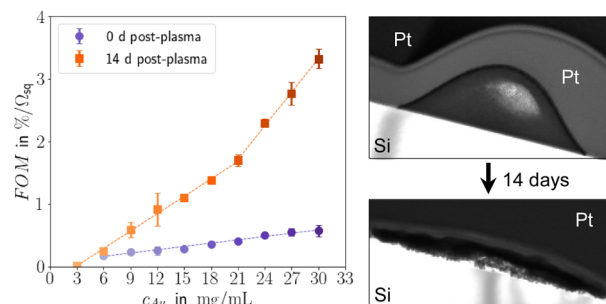
4107



### Effect of the combined addition of ultrasonicated kraft lignin and montmorillonite on hydroxypropyl methylcellulose bionanocomposites

Raquel Martín-Sampedro,\* Pilar Aranda, Gustavo del Real, Eduardo Ruiz-Hitzky and Margarita Darder

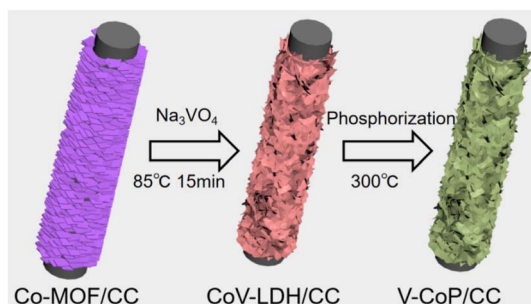
4124



### Consolidation and performance gains in plasma-sintered printed nanoelectrodes

Lukas F. Engel, Lola González-García\* and Tobias Kraus\*

4133



### V-doped porous CoP nanoarrays grown on carbon cloth with optimized electronic structure for the hydrogen evolution reaction

Wenzhi Jia, Qian Lu, Wenjun Zheng, Kunyan Wang, Xinhua Liu, Shichun Yang and Bin He\*



## Integration of Cypoviruses into polyhedrin matrix

Embedding Cypovirus into polyhedrin matrix

Cypovirus superstructure disassembly

$pH > 10$

Trimer front  
Trimer back  
Trimer bulk

$F_{fold} (kcal/mol)$

pH

## Phytofabrication of silver nanoparticles using *Averrhoa bilimbi* leaf extract for anticancer activity

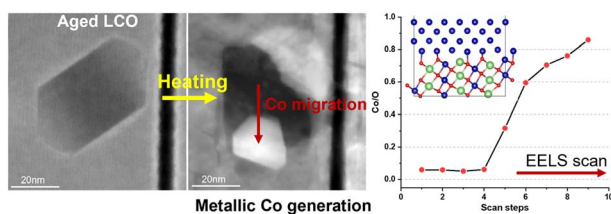
## ***In situ* preparation of double gradient anode materials based on polysiloxane for lithium-ion batteries**

## SARS-CoV-2 virus-like-particles *via* liposomal reconstitution of spike glycoproteins

The diagram illustrates the workflow for developing a liposome-based vaccine. It consists of four main stages:

- Liposome formulation**: The initial stage where liposomes are created.
- VLP formation**: The process of forming virus-like particles (VLPs) on the liposome surface.
- Characterization**: The stage where the VLPs are characterized.
- Cellular uptake validation**: The final stage where the VLPs are validated for cellular uptake.

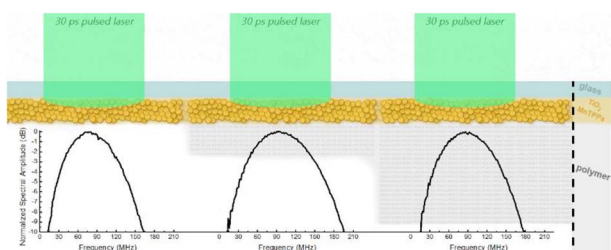
4182



### Chip-based *in situ* TEM investigation of structural thermal instability in aged layered cathode

Yuhan Wang, Yuan Yuan,<sup>\*</sup> Xiaobin Liao, Gustaaf Van Tendeloo, Yan Zhao<sup>\*</sup> and Congli Sun<sup>\*</sup>

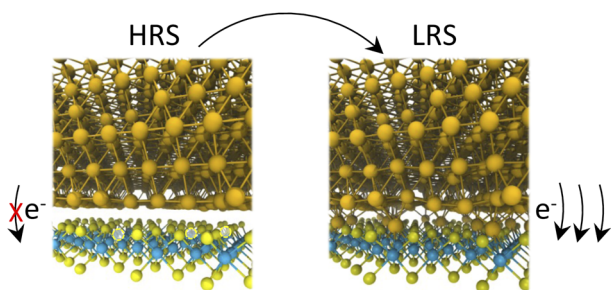
4191



### Ultrathin materials for wide bandwidth laser ultrasound generation: titanium dioxide nanoparticle films with adsorbed dye

Tiago B. Pinto, Sara M. A. Pinto, Ana P. Piedade and Carlos Serpa<sup>\*</sup>

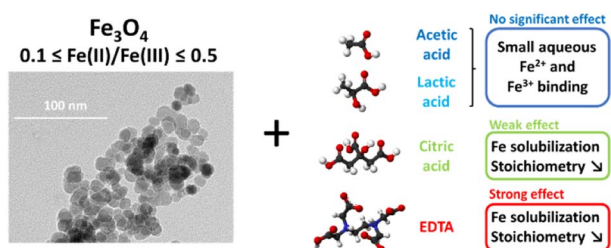
4203



### Non-volatile resistive switching mechanism in single-layer MoS<sub>2</sub> memristors: insights from *ab initio* modelling of Au and MoS<sub>2</sub> interfaces

Gabriele Boschetto,<sup>\*</sup> Stefania Carapezzi and Aida Todri-Sanial<sup>\*</sup>

4213



### Influence of organic ligands on the stoichiometry of magnetite nanoparticles

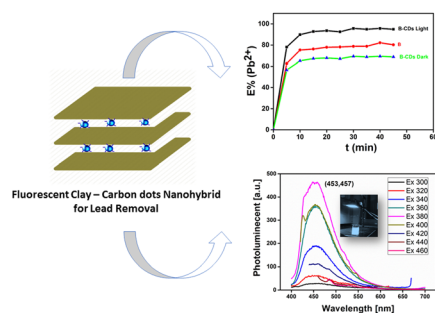
Phoomipat Jungcharoen, Rémi Marsac, Fadi Choueikani, Delphine Masson and Mathieu Pédrot<sup>\*</sup>



4224

### A carbon dot-based clay nanocomposite for efficient heavy metal removal

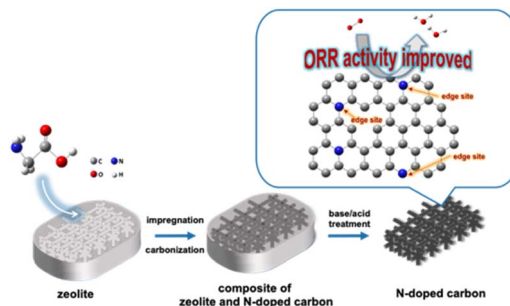
Khouloud Jlassi,<sup>\*</sup> Maryam Al Ejji, Abdelgalil Khalaf Ahmed, Hafsa Mutahir, Mostafa H. Sliem, Aboubakr M. Abdullah,<sup>\*</sup> Mohamed M. Chehimi<sup>\*</sup> and Igor Krupa



4233

### A zeolite templating method for fabricating edge site-enriched N-doped carbon materials

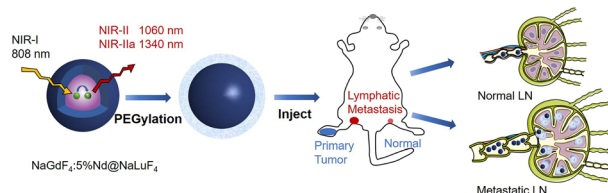
Yurika Taniguchi, Yasuhiro Shu, Ryuji Takada, Koji Miyake,<sup>\*</sup> Yoshiaki Uchida and Norikazu Nishiyama



4240

### Intraoperative diagnosis of early lymphatic metastasis using neodymium-based rare-earth NIR-II fluorescence nanoprobe

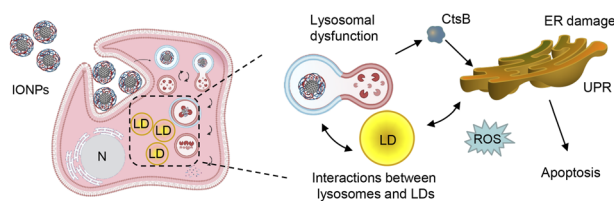
Guangxin Duan, Jingyu Zhang, Zhuxin Wei, Ximing Wang, Jianfeng Zeng, Shuwang Wu, Chunhong Hu<sup>\*</sup> and Ling Wen<sup>\*</sup>



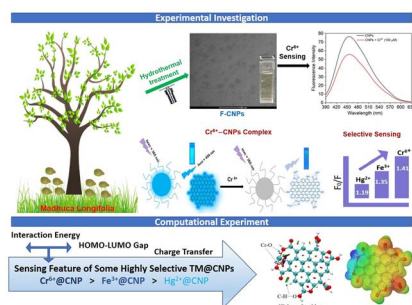
4250

### Iron oxide nanoparticles trigger endoplasmic reticulum damage in steatotic hepatic cells

Mariia Uzhytchak, Mariia Lunova, Barbora Smolková, Milan Jirsa, Alexandr Dejnek<sup>\*</sup> and Oleg Lunov<sup>\*</sup>



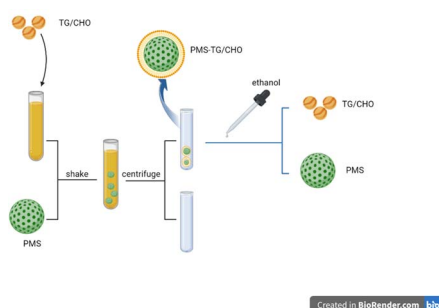
4269



### Development of fluorescent carbon nanoparticles from *Madhuca longifolia* flower for the sensitive and selective detection of $\text{Cr}^{6+}$ : a collective experimental–computational approach

Tuhin Mandal, Ashish Kumar Ghosh, Shiv Rag Mishra, Sarvesh Kumar Pandey\* and Vikram Singh\*

4286



### New application of a periodic mesoporous nanocrystal silicon–silica composite for hyperlipidemia

Wenbin Lu,\* Hao Jin,\* Jiandong Ding, Yahao Zhang and Yong Wu

