

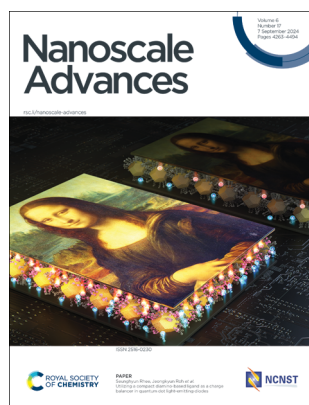
# Nanoscale Advances

An open access journal publishing across the breadth of nanoscience and nanotechnology  
[rsc.li/nanoscale-advances](https://rsc.li/nanoscale-advances)

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2516-0230 CODEN NAADAI 6(17) 4263–4494 (2024)



**Cover**  
See Seunghyun Rhee, Jeongkyun Roh *et al.*, pp. 4369–4375. Image reproduced by permission of Jeongkyun Roh from *Nanoscale Adv.*, 2024, 6, 4369.



**Inside cover**  
See Harshita Kumari *et al.*, pp. 4376–4384. Image reproduced by permission of Harshita Kumari from *Nanoscale Adv.*, 2024, 6, 4376.

## EDITORIAL

4272

### Frontiers in stimuli-responsive nanoplateforms: pioneering drug delivery in nanobiotechnology

Juan C. Cruz\* and Luis H. Reyes\*

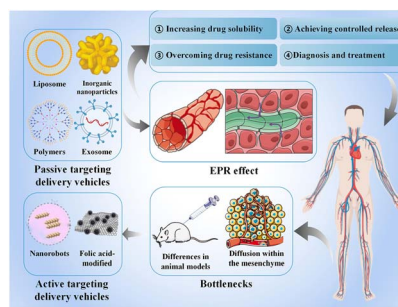


## REVIEWS

4275

### Smart delivery vehicles for cancer: categories, unique roles and therapeutic strategies

Yiyu Zeng, Yijun Gao, Liming He, Wenhui Ge, Xinying Wang, Tao Ma and Xiaoyan Xie\*



# Environmental Science journals

One impactful portfolio for  
every exceptional mind

Harnessing the power of interdisciplinary  
science to preserve our environment

[rsc.li/envsci](https://rsc.li/envsci)

Fundamental questions  
Elemental answers

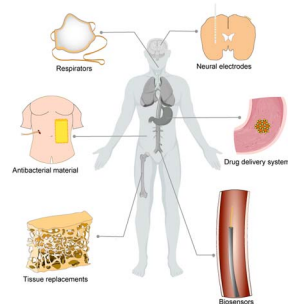


## REVIEWS

4309

**Polyimide as a biomedical material: advantages and applications**

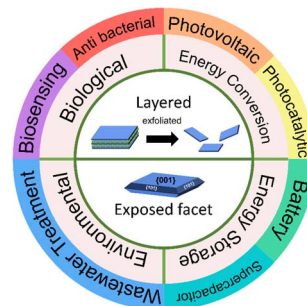
Junjie Shu, Zhongfu Zhou, Huaping Liang\* and Xia Yang\*



4325

**Facet-controlled growth and soft-chemical exfoliation of two-dimensional titanium dioxide nanosheets**

Christian Harito,\* Munawar Khalil, Leanddas Nurdijayanto, Ni Luh Wulan Septiani, Syauqi Abdurrahman Abrori, Budi Riza Putra, Syed Z. J. Zaidi, Takaaki Taniguchi, Brian Yulianto and Frank C. Walsh

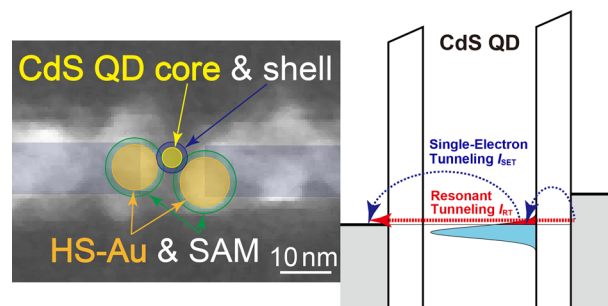


## COMMUNICATIONS

4346

**Resonant tunneling in a colloidal CdS semiconductor quantum-dot single-electron transistor based on heteroepitaxial-spherical Au/Pt nanogap electrodes**

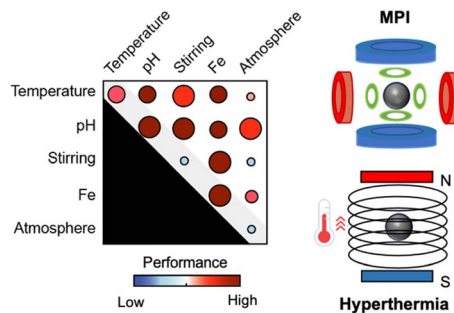
Genki Ohkatsu, Takumi Nishinobo, Masaki Saruyama, Toshiharu Teranishi and Yutaka Majima\*



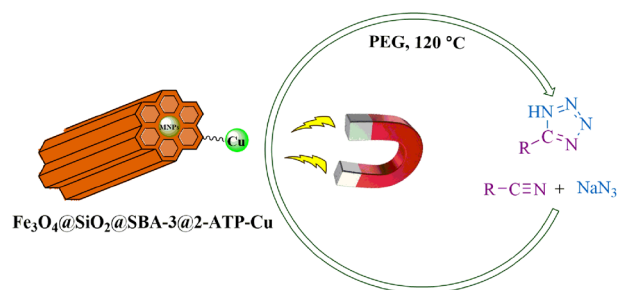
4352

**Improving MPI and hyperthermia performance of superparamagnetic iron oxide nanoparticles through fractional factorial design of experiments**

Yanchen Li, Rui Zhang, Roman Barmin, Elena Rama, Max Schoenen, Franziska Schrank, Volkmar Schulz, Ioana Slabu, Fabian Kiessling, Twan Lammers and Roger M. Pallares\*



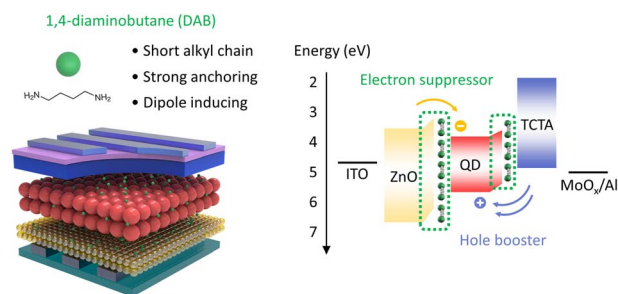
4360



### Magnetically recoverable $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{SBA-3}@2\text{-ATP-Cu}$ : an improved catalyst for the synthesis of 5-substituted 1*H*-tetrazoles

Zahra Heidarneshad, Arash Ghorbani-Choghmarani\* and Zahra Taherinia

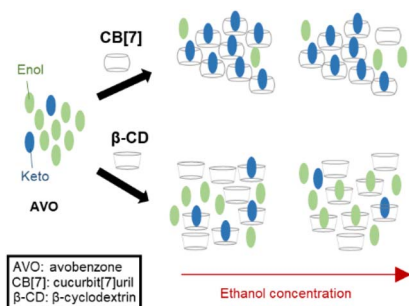
4369



### Utilizing a compact diamino-based ligand as a charge balancer in quantum dot light-emitting diodes

Minseok Choi, Woon Ho Jung, Jaeyeop Lee, Yeyun Bae, Kyoungun Lee, Jiyeon Oh, Jaehoon Lim, Seunghyun Rhee\* and Jeongkyun Roh\*

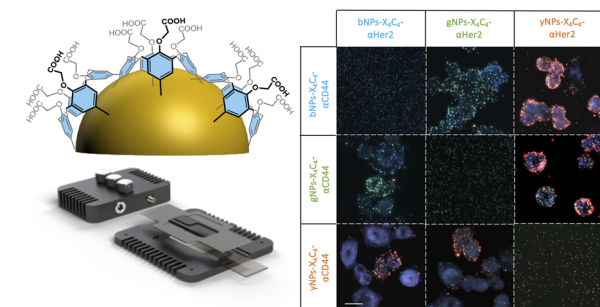
4376



### Dynamic macromolecular material design: the versatility of cucurbituril over cyclodextrin in host-guest chemistry

Jinnipha Pajoubpong, Collin M. Mayhan, Ajaz Ahmad Dar, Alexander I. Greenwood, Karoline C. Klebba, Matthew L. Cremer and Harshita Kumari\*

4385



### Multiplexed immunolabelling of cancer using bioconjugated plasmonic gold-silver alloy nanoparticles

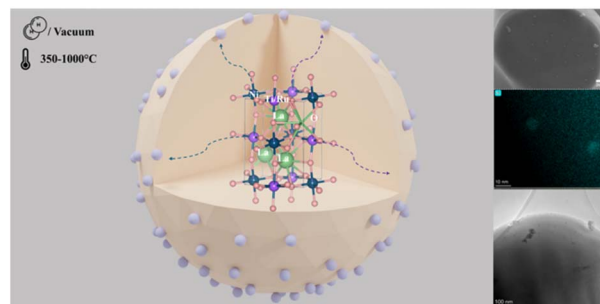
Cécile Darvot, Bryan Gosselin, Flavie Martin, Sergiy Patskovsky, Ivan Jabin, Gilles Bruylants, Dominique Trudel and Michel Meunier\*



4394

### *In situ* investigation of ruthenium doped lanthanum nickel titanium double perovskite and its exsolution behaviour

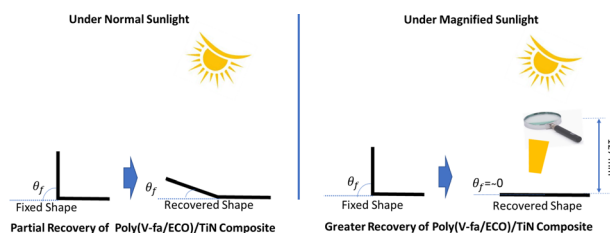
Jia Guo, Andrey Berenov and Stephen J. Skinner\*



4407

### Development of a magnified sunlight responsive shape memory bio-composite: effects of titanium nitride (TiN) nanoparticles on a bio-based benzoxazine/epoxy copolymer

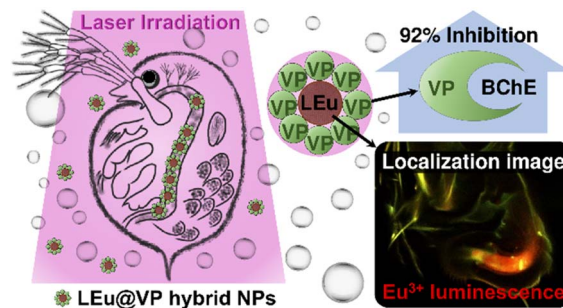
Anandraj Joseph, Ibrahim Lawan, Krittapas Charoensuk, Panuwat Luengrojankul, Phattarin Mora, Cheol-Hee Ahn and Sarawut Rimdusit\*



4417

### Smart photopharmacological agents: LaVO<sub>4</sub>:Eu<sup>3+</sup>@vinyl phosphonate combining luminescence imaging and photoswitchable butyrylcholinesterase inhibition

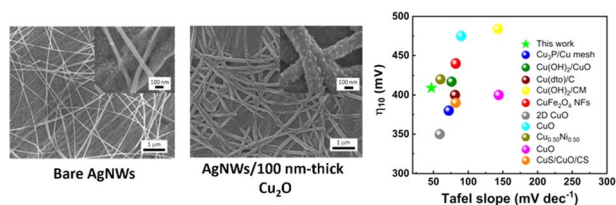
Gulia Bikbaeva, Anna Pilip, Anastasiya Egorova, Vasily Medvedev, Daria Mamonova, Dmitrii Pankin, Alexey Kalinichev, Natalya Mayachkina, Lyudmila Bakina, Ilya Kolesnikov, Gerd Leuchs\* and Alina Manshina\*



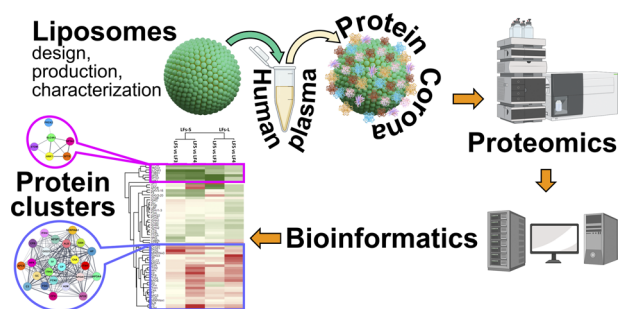
4426

### Nanocomposites based on Cu<sub>2</sub>O coated silver nanowire networks for high-performance oxygen evolution reaction

Sergio Battiato, Abderrahime Sekkat, Camilo Sanchez Velasquez, Anna Lucia Pellegrino, Daniel Bellet, Antonio Terrasi, Salvo Mirabella and David Muñoz-Rojas\*



4434



### Unraveling the impact of different liposomal formulations on the plasma protein corona composition might give hints on the targeting capability of nanoparticles

Esther Imperlini, Luisa Di Marzio, Armando Cevenini, Michele Costanzo, Nicola d'Avanzo, Massimo Fresta, Stefania Orrù,\* Christian Celia\* and Francesco Salvatore\*

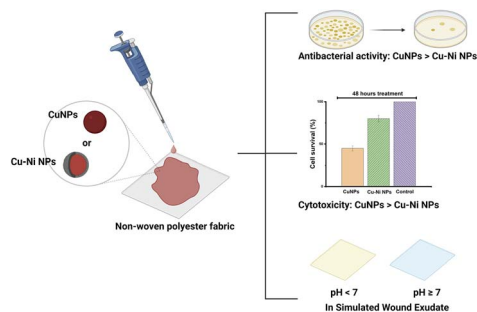
4450



### Colloidal spherical stibnite particles via high-temperature metallo-organic synthesis

Maximilian Joschko, Christina Malsi, John Rapier, Paolo Scharmann, Sören Selve and Christina Graf\*

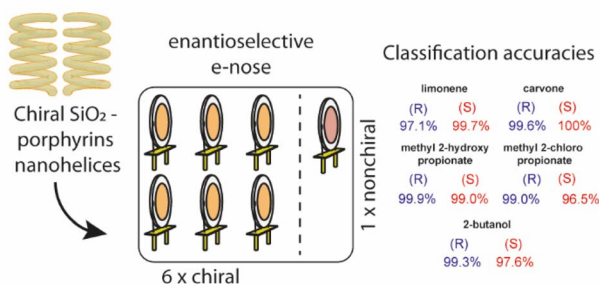
4462



### Nickel coating on plasmonic copper nanoparticles lowers cytotoxicity and enables colorimetric pH readout for antibacterial wound dressing application

Bohan Zhang, Sladjana Slavkovic, Yumin Qiu, Chun Peng and Jennifer I-Ling Chen\*

4470



### Chiral porphyrin-SiO<sub>2</sub> nano helices-based sensors for vapor enantiomers recognition

Ilaria Di Filippo, Zakaria Anfar, Gabriele Magna,\* Piyanan Pranee, Donato Monti, Manuela Stefanelli, Reiko Oda, Corrado Di Natale and Roberto Paolesse



4479

## First principles study on the structural stability, mechanical stability and optoelectronic properties of alkali-based single halide perovskite compounds $\text{XMgI}_3$ ( $X = \text{Li}/\text{Na}$ ): DFT insight

Kefyalew Wagari Guji,\* Tesfaye Abebe Geleta,\* Nabil Bouri and Victor José Ramirez Rivera

