

# Nanoscale Advances

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ISSN 2516-0230 CODEN NAADAI 5(17) 4301–4612 (2023)



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See Giuliana Grasso, Loretta L. del Mercato *et al.*, pp. 4311–4336.  
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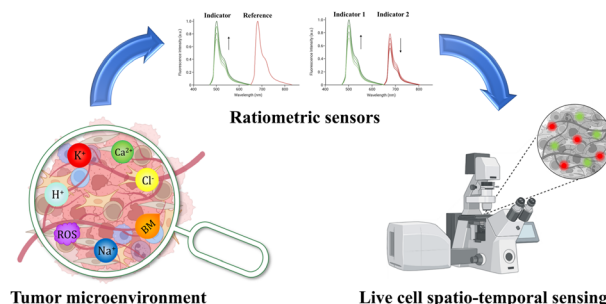
**Inside cover**  
See Daria Miliaieva *et al.*, pp. 4402–4414. Image reproduced by permission of Daria Miliaieva, Bohuslav Rezek, Vojtech Nádaždy from *Nanoscale Adv.*, 2023, 5, 4402.

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### Fluorescent nano- and microparticles for sensing cellular microenvironment: past, present and future applications

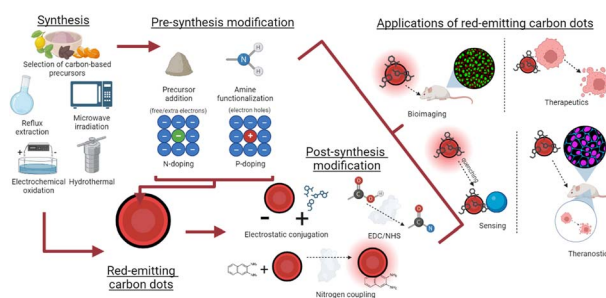
Giuliana Grasso,\* Francesco Colella, Stefania Forciniti, Valentina Onesto, Helena Luele, Anna Chiara Siciliano, Federica Carnevali, Anil Chandra, Giuseppe Gigli and Loretta L. del Mercato\*



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### Red emitting carbon dots: surface modifications and bioapplications

Dawson Benner, Pankaj Yadav and Dhiraj Bhatia\*



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*Nanoscale Advances* publishes experimental and theoretical work across the breadth of nanoscience and nanotechnology.



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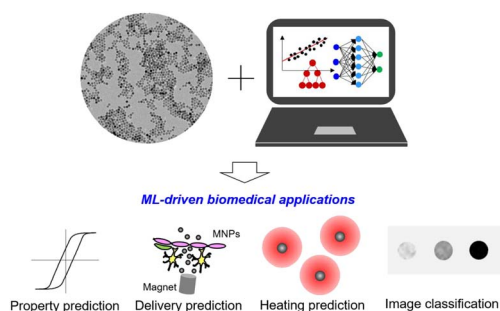


## REVIEWS

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### Machine learning assisted-nanomedicine using magnetic nanoparticles for central nervous system diseases

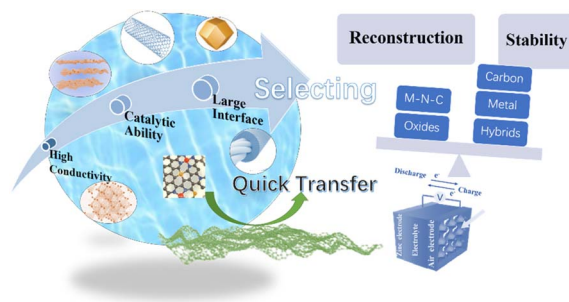
Asahi Tomitaka,\* Arti Vashist, Nagesh Kolishetti and Madhavan Nair\*



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Wanqi Tang, Jiarong Mai, Lili Liu,\* Nengfei Yu,\* Lijun Fu, Yuhui Chen, Yankai Liu, Yuping Wu\* and Teunis van Ree

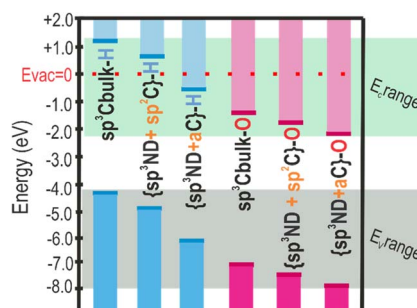


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### Absolute energy levels in nanodiamonds of different origins and surface chemistries

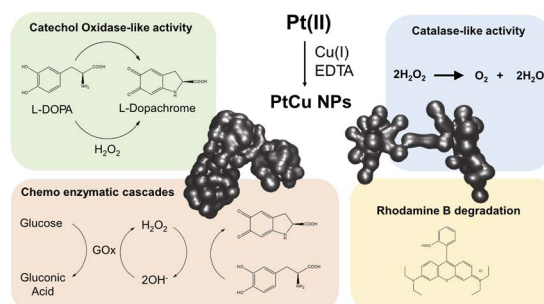
Daria Miliáieva,\* Aurelien Sokeng Djoumessi, Jan Čermák, Kateřina Kolářová, Maximilian Schaal, Felix Otto, Ekaterina Shagieva, Olexandr Romanyuk, Jiří Pangrác, Jaroslav Kuliček, Vojtech Nádaždy, Štěpán Stehlík, Alexander Kromka, Harald Hoppe and Bohuslav Rezek



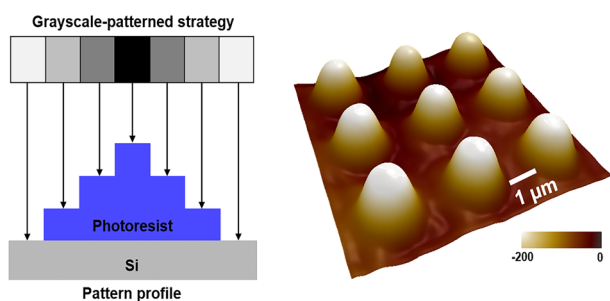
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### Copper(I) as a reducing agent for the synthesis of bimetallic PtCu catalytic nanoparticles

Adrián Fernández-Lodeiro,\* Javier Fernández Lodeiro, Noelia Losada-García, Silvia Nuti, José Luis Capelo-Martínez, Jose M. Palomo\* and Carlos Lodeiro\*



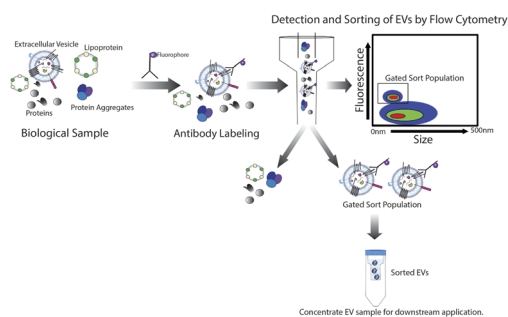
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### Spatial modulation of scalable nanostructures by combining maskless plasmonic lithography and grayscale-patterned strategy

Dandan Han, Tianchun Ye\* and Yayi Wei\*

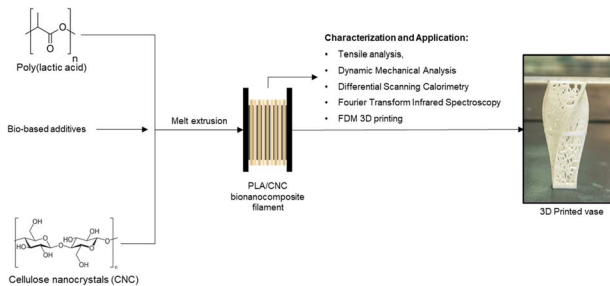
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### Separation and isolation of CD9-positive extracellular vesicles from plasma using flow cytometry

Karan Khanna, Nikki Salmond, Sina Halvaei, Andrew Johnson and Karla C. Williams\*

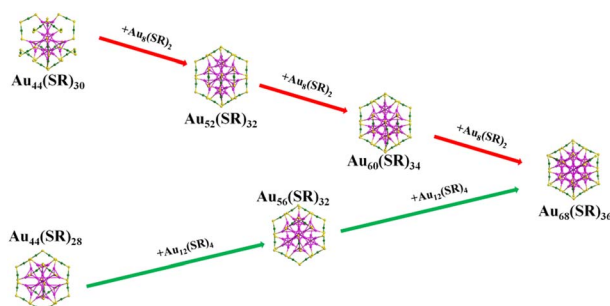
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Victor Chike Agbakoba,\* Percy Hlangothi, Jerome Andrew and Maya Jacob John

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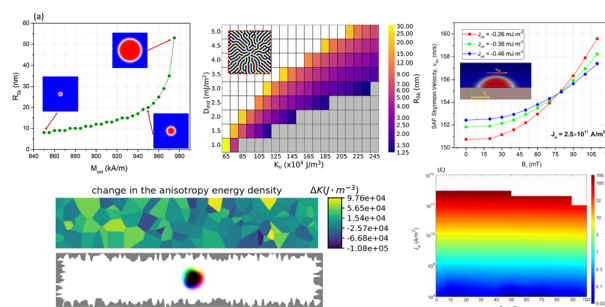
Wenhua Han, Gang Wang, Pengye Liu, Wenliang Li\* and Wen Wu Xu\*



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## Stabilization and adiabatic control of antiferromagnetically coupled skyrmions without the topological Hall effect

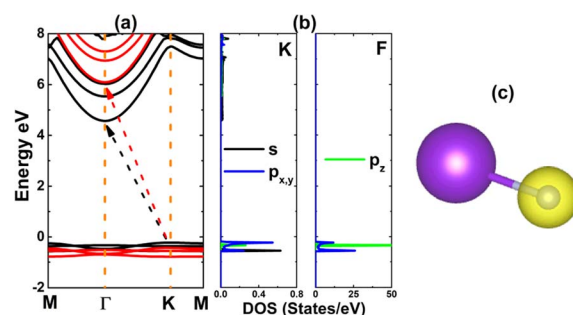
Rawana Yagan, Arash Mousavi Cheghabouri and Mehmet C. Onbasli\*



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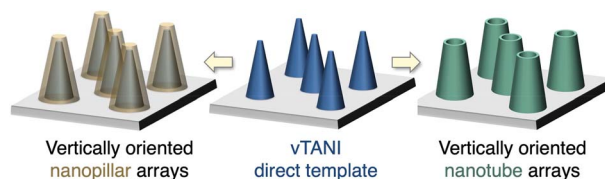
Huynh Anh Huy, Duy Khanh Nguyen, Chu Viet Ha, Dang Duc Toan, Hang Nga Nguyen, J. Guerrero Sanchez and D. M. Hoat\*



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## A new and versatile template towards vertically oriented nanopillars and nanotubes

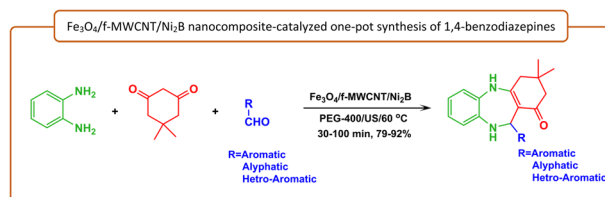
Bohao Xu, Di Wu, Ian M. Hill, Merissa Halim, Yves Rubin and Yue Wang\*



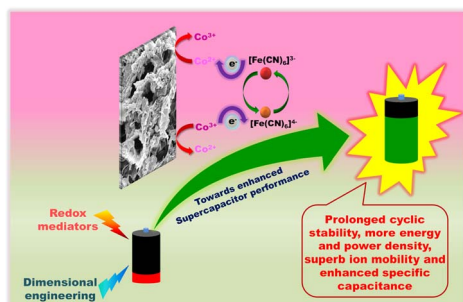
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## Immobilized nickel boride nanoparticles on magnetic functionalized multi-walled carbon nanotubes: a new nanocomposite for the efficient one-pot synthesis of 1,4-benzodiazepines

Farkhondeh Mohammad Aminzadeh and Behzad Zeynizadeh\*



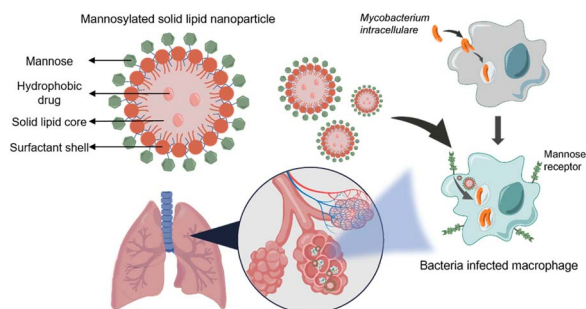
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### Redox mediator-enhanced charge storage in dimensionally tailored nanostructures towards flexible hybrid solid-state supercapacitors

Ritik Mohanty, Kaushik Parida\* and Kulamani Parida\*

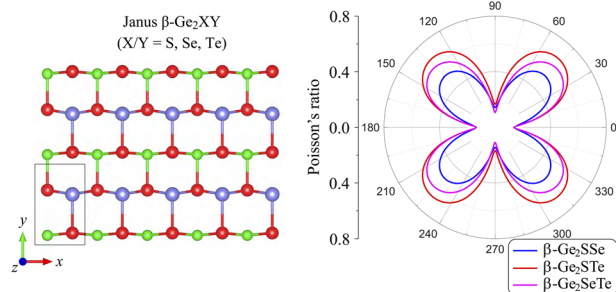
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### Targeted and efficient delivery of rifampicin to macrophages involved in non-tuberculous mycobacterial infection via mannosylated solid lipid nanoparticles

Jayoung Chae, Seung Hyun Kang, Jiwon Kim, Yonghyun Choi,\* Shin Hyuk Kang\* and Jonghoon Choi\*

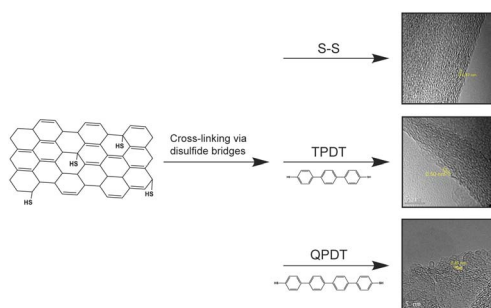
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### Novel two-dimensional Janus $\beta$ -Ge<sub>2</sub>XY (X/Y = S, Se, Te) structures: first-principles examinations

Nguyen Dinh Hien, D. V. Lu\* and Le C. Nhan

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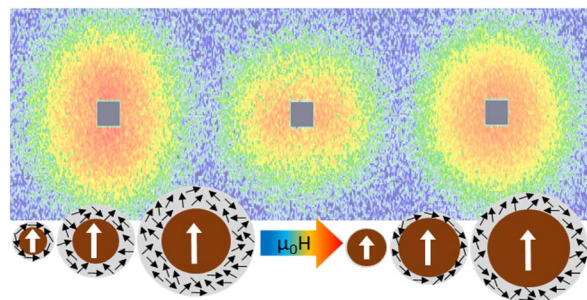
Nikita Sugak,\* Hien Pham, Abhaya Datye, Shomeek Mukhopadhyay, Haiyan Tan, Min Li and Lisa D. Pfeifferle



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### Size dependence of the surface spin disorder and surface anisotropy constant in ferrite nanoparticles

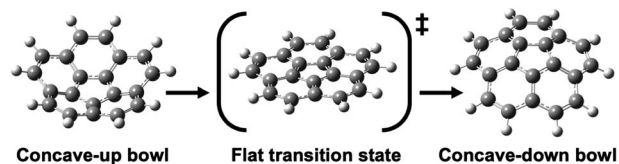
Marianna Gerina, Marco Sanna Angotzi, Valentina Mameli, Veronika Gajdošová, Daniel N. Rainer, Milan Dopita, Nina-Juliane Steinke, David Aurélio, Jana Vejpravová and Dominika Zákutná\*



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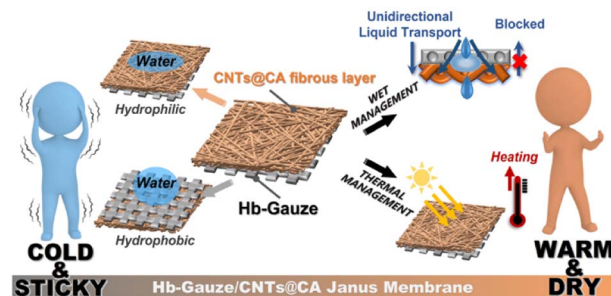
Panyada Sripaturad, Amir Karton,\* Kyle Stevens, Ngamta Thamwattana,\* Duangkamon Baowan and Barry J. Cox



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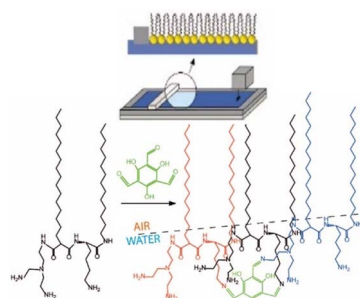
Boyang Tian, Miaomiao Hu, Yiwen Yang and Jing Wu\*



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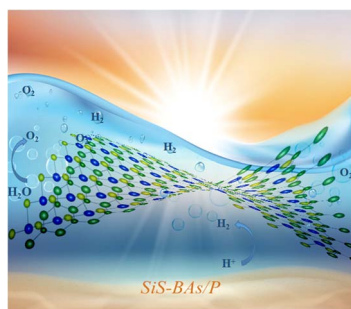
### Cross-linking reactions in Langmuir monolayers of specially designed aminolipids – a toolbox for the customized production of amphiphilic nanosheets

Cristina Stefaniu, Christian Wölk,\* Victoria M. Latza, Andrei Chumakov, Gerald Brezesinski and Emanuel Schneck\*



## PAPERS

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**First-principles study of BX–SiS (X = As, P) van der Waals heterostructures for enhanced photocatalytic performance**

Sheraz Ahmad, H. U. Din,\* S. S. Ullah Sabir and B. Amin

## CORRECTION

4609

**Correction: Flavin-adenine-dinucleotide gold complex nanoparticles: chemical modeling design, physico-chemical assessment and perspectives in nanomedicine**

Celia Arib, Nadia Bouchemal, Maria Barile, Didier Paleni, Nadia Djaker, Nathalie Dupont and Jolanda Spadavecchia\*

