

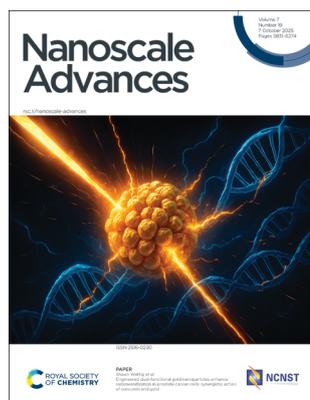
# Nanoscale Advances

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## IN THIS ISSUE

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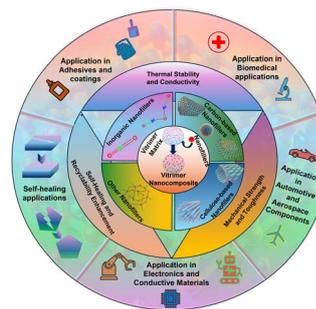
**Cover**  
See Shawn Wettig *et al.*,  
pp. 5964–5977. Image  
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Mohamed Aborig and Shawn  
Wettig from *Nanoscale Adv.*,  
2025, 7, 5964.

## REVIEWS

5842

### Impact of nanofillers on vitrimerization and recycling strategies: a review

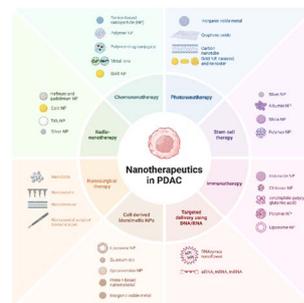
Sourav Ghosh, Amrita Chatterjee, Nilanjan Dey, Sunidhi Mishra, Shakshi Bhardwaj, Shiva Singh, Ujjal Tewary, Satyam Sahay, Madhuchhanda Maiti and Pradip K. Maji\*



5888

### Nanomedicine breakthroughs overcoming pancreatic cancer drug resistance through precision nano-interventions

Linjia Peng, Yanfeng Liang, Xiaonan Guo, Qiuli Zhang, Zixuan Gao, Xinxin Kong, Haiting Zhang, Binyu Zhu and Daxiang Cui\*



# Environmental Science: Atmospheres

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Fundamental questions  
Elemental answers

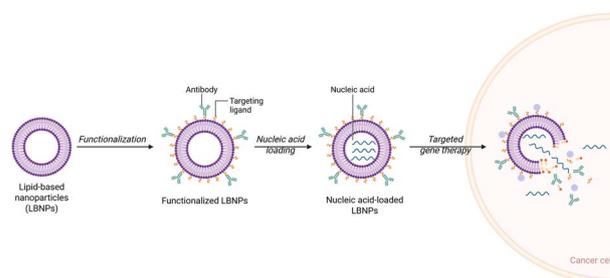


## REVIEWS

5905

### Antibody-functionalized lipid nanocarriers for RNA-based cancer gene therapy: advances and challenges in targeted delivery

Nadine Wafik Nabih, Hatem A. F. M. Hassan, Eduard Preis, Jens Schaefer, Asaad Babker, Anass M. Abbas, Muhammad Umair Amin, Udo Bakowsky\* and Sherif Ashraf Fahmy\*

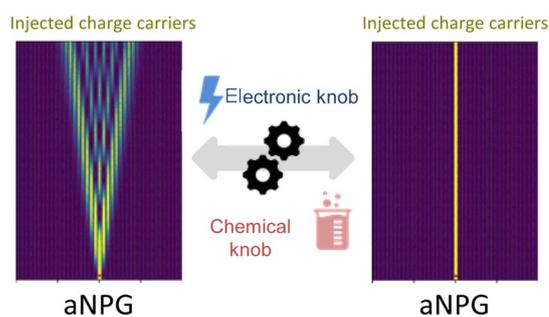


## MINIREVIEW

5932

### Progress on quantum transport engineering in atomically precise anisotropic nanoporous graphene

Isaac Alc3n,\* Aron W. Cummings, Esteve Ribas, Stephan Roche and Aitor Mugarza\*

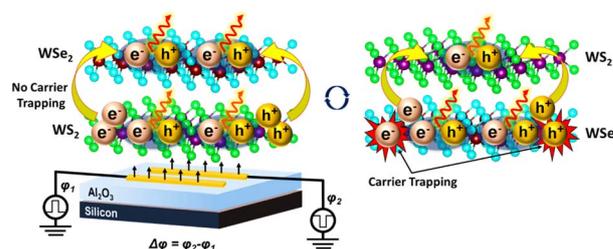


## COMMUNICATIONS

5944

### Carrier recombination manipulation for tunable multicolor emission in two-dimensional transition metal dichalcogenide light-emitting devices

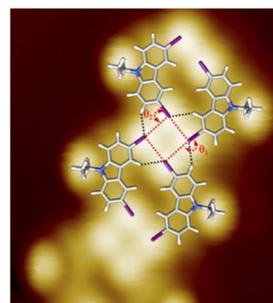
Mi-Hsueh (Michelle) Wu, James Singh Konthoujam, Iris Lin, Tzu-Yu Peng, Yu-Jung Lu and Min-Hsiung Shih\*



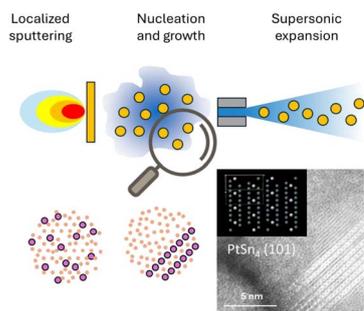
5951

### Halogen bonding-guided growth of heteroatom-rich polycarbazole wires on Au(111)

Frank Palmino, Vincent Luzet, Judicaël Jeannoutot, Alain Rochefort and Frédéric Ch3rioux\*



5956

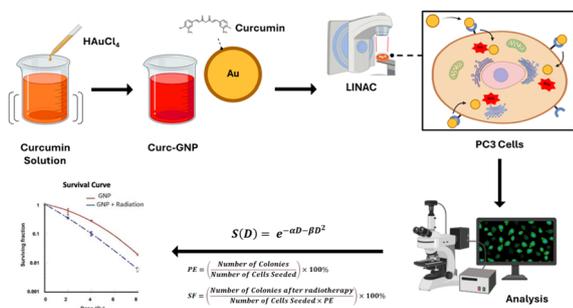


### Supersonic cluster beam deposition of bimetallic Sn–Pt nanogranular films: nanostructure control, segregation, and 2D intermetallic phases

José Enrique Martínez Medina, Marc Heggen, Adrian-Marie Philippe and Emanuele Barborini\*

## PAPERS

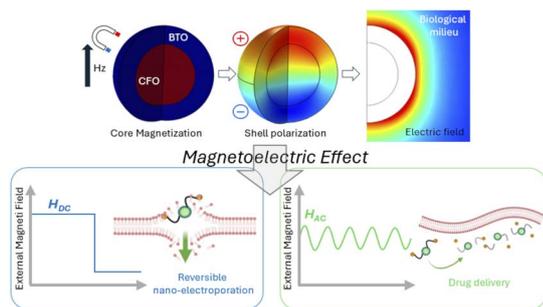
5964



### Engineered dual-functional gold nanoparticles enhance radiosensitization in prostate cancer cells: synergistic action of curcumin and gold

Mohamed Aborig, Moad Alsefaou, Ernest Osei and Shawn Wettig\*

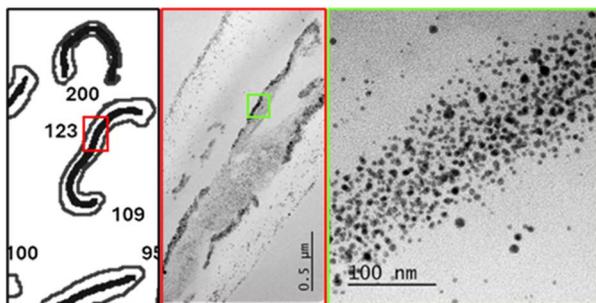
5978



### Exploring magnetolectric nanoparticles for advanced nano-electroporation and drug delivery in interventional cardiology

A. Tommasini, G. Suarato,\* S. Fiocchi, E. Chiamello, A. Marrella, M. Lenzuni, M. Parazzini, B. Cortese and P. Ravazzani

5993



### Immature cotton fibers upcycled into advanced natural nanoparticle synthesizers

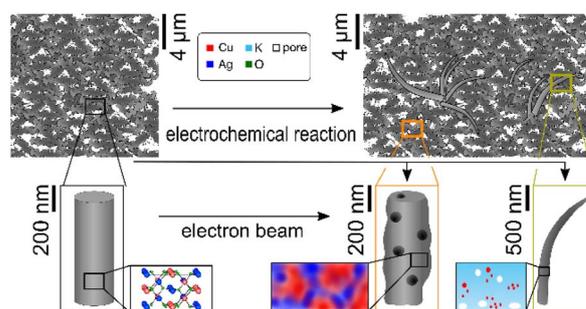
Sunghyun Nam,\* Shaida S. Rumi, Nouredine Abidi, Hee Jin Kim, Zhongqi He, Doug J. Hinchliffe, Md Nayeem Hasan Kashem, Matthew B. Hillyer and Holly King



6005

### Understanding the degradation of $\text{Ag}_2\text{Cu}_2\text{O}_3$ electrocatalysts for $\text{CO}_2$ reduction

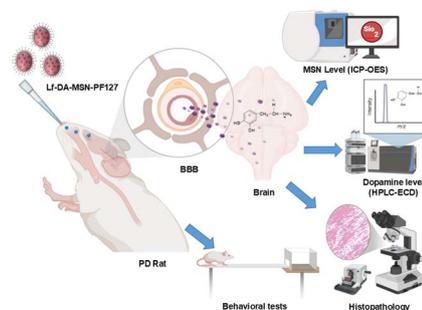
N. Vorlauffer,\* J. Josten, A. Hutzler, C. A. Macauley, N. Martić,\* M. Weiser, G. Schmid, K. J. J. Mayrhofer and P. Felfer



6017

### A novel nanocomposite Lf-DA-MSN-PF127 aided the delivery of dopamine for the treatment of Parkinson's disease in a rat model

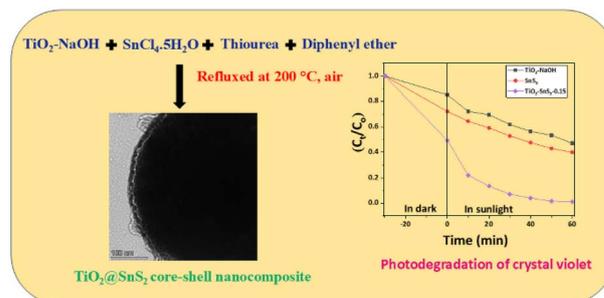
Ramesha Hanumanthappa, Sumit Ramesh Naik, Sahana Prakash Nayak, Asmatanzeem Bepari, Hanan Nasser Altamimi, Mujeeb Ahmed Shaikh, Fahd A. Nasr, Farha M. Shaikh, P. C. Nethravathi, Hemalatha Nanjaiah,\* D. Suresh, Raghu S. V. and Kuramkote Shivanna Devaraju\*



6032

### Fabrication of $\text{TiO}_2@\text{SnS}_2$ core-shell nanocomposites via a thermal decomposition approach for sunlight-driven photodegradation of crystal violet

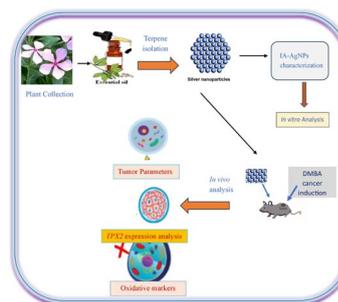
Nainy Khera and Jeevanandam Pethaiyan\*



6049

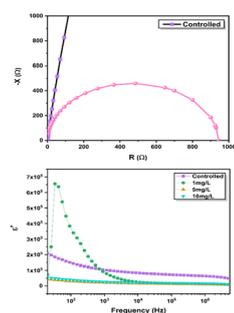
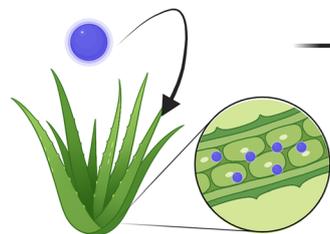
### Green-synthesized silver nanoparticles from incensole acetate modulate *TPX2* expression in DMBA-induced breast cancer

Iffat Nayila,\* Muhammad Sarwar, Saima Hameed, Aasma Iqbal and Sumaira Sharif\*



6066

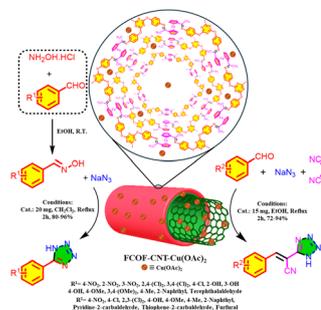
NCCH- nanoparticles



### Charge transport dynamics and energy storage implications of nickel cobalt carbonate hydroxide interaction with the *Aloe vera* leaf matrix

Kajal Gautam,<sup>\*</sup> Mohit Bhatt, Archana Sagdeo, Hukum Singh and Anil Kumar Sinha<sup>\*</sup>

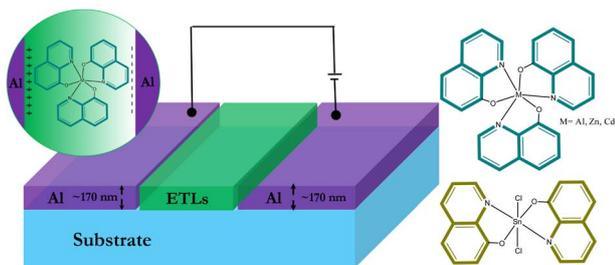
6084



### Ferrocene-based covalent organic framework-carbon nanotube hybrid modified with Cu(OAc)<sub>2</sub> as a robust catalyst for the preparation of tetrazoles

Zahra Alishahi, Mohammad Ali Zolfigol,<sup>\*</sup> Saeid Azizian,<sup>\*</sup> Morteza Torabi and Yanlong Gu

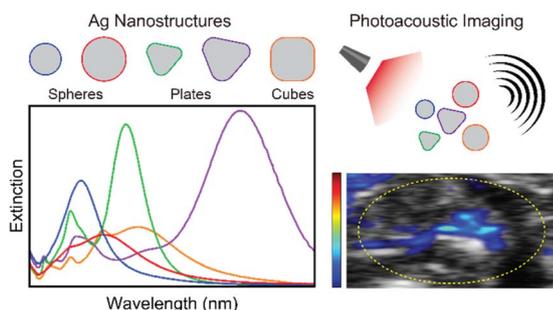
6098



### Hydroxyquinoline-coordinated organometallic complex nanowire and nanosheet for the dielectric layer of capacitors

Karim Khanmohammadi Chenab, Fardad Zarifi, Samaneh Mahmoudi Qashqay and Mohammad-Reza Zamani-Meymian<sup>\*</sup>

6110



### Structural engineering of silver nanoparticles for enhanced photoacoustic imaging

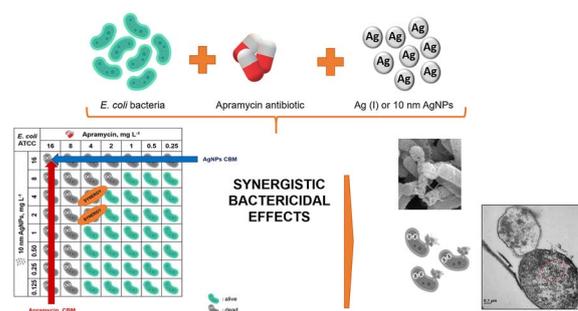
Rui Zhang, Manuel Dias, Yanchen Li, Stephan Rütten, Fabian Kiessling, Twan Lammers and Roger M. Pallares<sup>\*</sup>



6120

### Synergistic activity of silver nanoparticles and antibiotics: apramycin against *Escherichia coli*

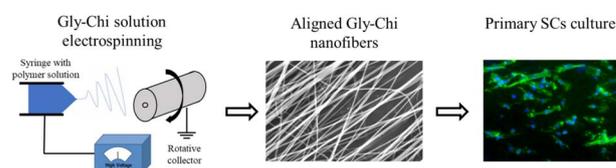
Ana C. Gimenez-Ingalaturre, Isabel Abad-Álvaro,\*  
Patricia Chueca, Pilar Goñi and Francisco Laborda



6132

### Chitosan–glycerol blended nanofibers for peripheral nerve regeneration applications

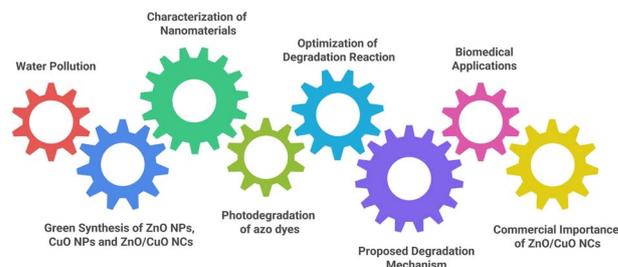
L. Scaccini, A. Sensini, D. Puppi, M. Gagliardi, L. Moroni,  
M. Cecchini, P. Wieringa\* and I. Tonazzini



6145

### Biogenic synthesis of ZnO NPs, CuO NPs, and ZnO/CuO nanocomposites for facile degradation of organic pollutants and biomedical applications

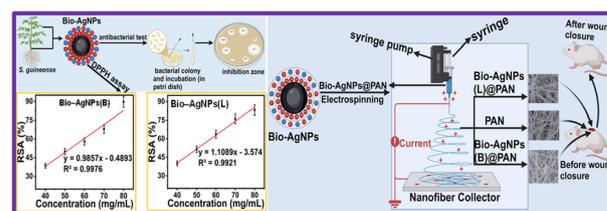
Hafiza Kainat Abid, Abu Bakar Siddique,\* Azhar Abbas,  
Muhammad Ashraf Shaheen, Akbar Ali, Mashal Fatima,  
Ashwag Shami, Maymounah A. Alranyani,  
Fakhria A. Al-Joufi and Mohammed A. Assiri



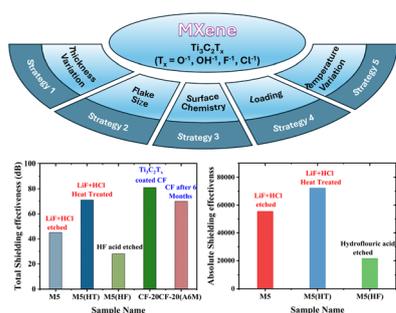
6158

### Advanced nanofiber therapy: multifunctional silver-nanoparticles@polyacrylonitrile incorporating *Syzygium guineense* extracts for enhanced *in vivo* diabetic wound-healing and robust antimicrobial defense

Teshale Ayano Begeno,\* Yaqi Zhang,  
Abdurohman Mengesha Yessuf, Tibebe Shiferaw Kassa,  
Ahmed M. Salama, Weiguo Wang\* and Zhenxia Du\*



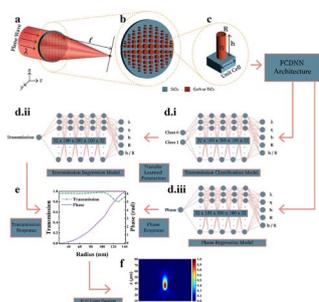
6179



## Unlocking exceptional EMI shielding in $Ti_3C_2T_x$ MXenes through controlled microstructure and surface chemistry

Shahzad Hussain,\* Resham Siddique, Muhammad Nadeem, Eman Zafar, Sadia Manzoor and Jawwad A. Darr

6196



## Beyond application-specific design: a generalized deep learning framework for optical property prediction in $TiO_2/GaN$ nanophotonic metasurfaces

Adrita Anwar, Shahamat Mustavi Tasin, Mahabub Alam Bhuiyan, Nymul Yeacin, Sharnali Islam and Khaleda Ali\*

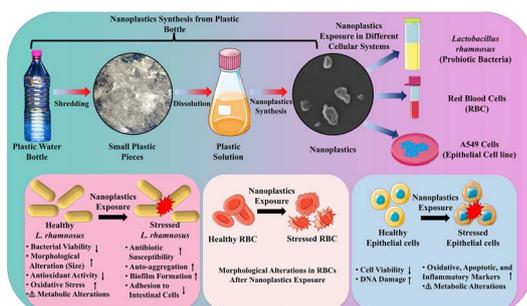
6205



## Fibrin/ $MoS_2$ -nanosheet conductive hydrogels with programmed time scales and pathways for bioresorption

Vidushi Shukla, Willis T. Bilderback, Deisy Fernandes, Mark Daley, Rojry Basnet, Pushkaraj Joshi, Zidan Yang, Anubhav Tripathi, Jacob K. Rosenstein, Karen Coulombe and Robert H. Hurt\*

6220



## Nanoplastics from single-use polyethylene terephthalate bottles impair the functionality of human gut-dwelling *Lactobacillus rhamnosus* and induce toxicity in human cells

Prashant Sharma, Sakshi Dagariya, Gurbinder Singh, Dinesh Kumar and Manish Singh\*



6239

## Eco-friendly fabrication of hydrophobic and breathable nanofibrous membranes via molecularly engineered WPU/PAM composites

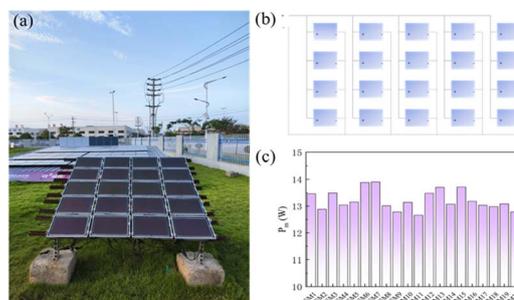
Li Wang,\* Fajun Peng, Di Jin, Sen Fang and Yan Wang



6248

## Report on the relevance of perovskite module outdoor ageing performance and indoor UV degradation trend

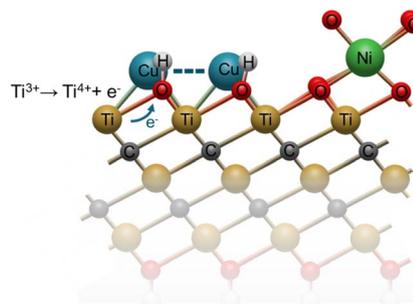
Lu Zhang, Dongxue Liu, Guiting Du, Long Cai, Wanlei Dai, Yixin Dong, Huitao Dai, Yongshuai Gong, Shengxiong Zhang, Buyi Yan\* and Jizhong Yao\*



6257

## Chemical origin of effective functionalization of single atom-MXene catalysts

See-eun Tae, Zhihao Yen, Yejin Kim, Mengyuan Zhang, Wenyu Luo, Qingyu Yan, Hyeonseo Jang, Byoung Gun Han, Yeng Ming Lam\* and Deok-Yong Cho\*



6265

## Preserving enzyme conformation and catalytic efficiency in crowded and active environments

Arnab Maiti, Nividha and Krishna Kanti Dey\*

