

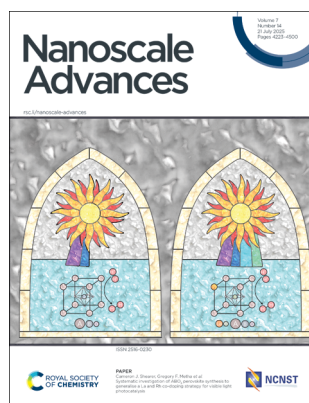
Nanoscale Advances

An open access journal publishing across the breadth of nanoscience and nanotechnology
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 7(14) 4223–4500 (2025)



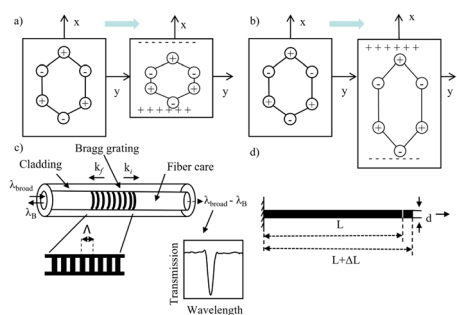
Cover
See Cameron J. Shearer,
Gregory F. Metha *et al.*,
pp. 4313–4324. Image
reproduced by permission of
Cameron J. Shearer from
Nanoscale Adv., 2025, 7, 4313.

REVIEWS

4232

Future development directions of high-temperature strain gauges: a comprehensive review of structure and performance characteristics

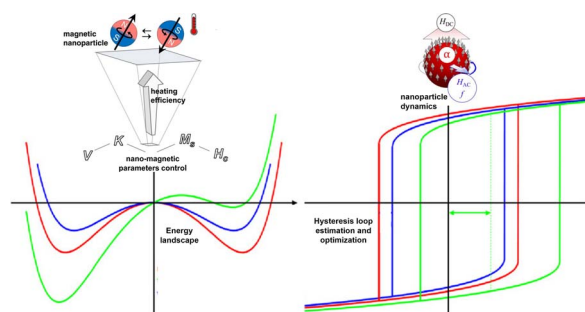
Xiang Liu, Zhongkai Zhang,* Jiaying Wang, Meng Wang, Tao Lin, Yantao Liu, Qing Tan, Rui Qi, Zhaojun Liu* and Bian Tian*



4252

A comprehensive analysis of nanomagnetism models for the evaluation of particle energy in magnetic hyperthermia

N. Maniotis,* M. Maragakis and N. Vordos



RSC Applied Interfaces

GOLD
OPEN
ACCESS

Interfacial and surface research
with an applied focus

Interdisciplinary and open access

rsc.li/RSCApplInter

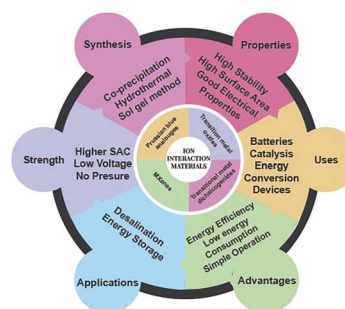
Fundamental questions
Elemental answers

REVIEWS

4270

Impact of ion intercalation materials on advancing capacitive deionization: from theory to practical

Mahima S., Manjunatha Kumar K. S., Prajwal Sherugar, Xuezhu Xu, Gurunatha K. L., Mahesh Padaki* and D. H. Nagaraju*

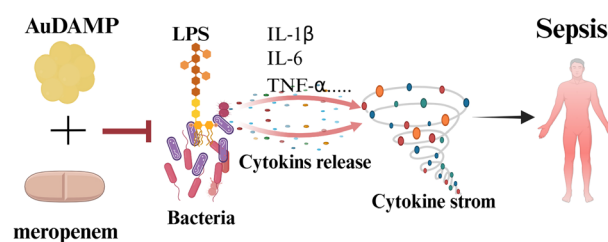


COMMUNICATIONS

4293

Antibacterial gold nanoclusters combined with meropenem for the treatment of sepsis by alleviating the cytokine storm

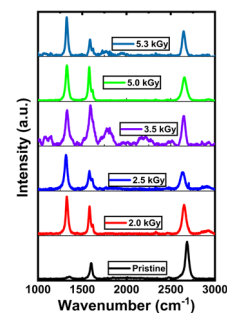
Chengli Wen, Youkun Zheng, Yong Li, Liping Yuan, Sicheng Liang, Xianying Lei, Tao Xu, Qinxue Hu, Yuan Li, Muhan Lü,* Wanmeng Xiao* and Zehui Yu*



4303

Gamma irradiation effects on physical and electronic properties of monolayer CVD grown graphene

Chintan P. Chavda,* Ashok Srivastava, Erin Vaughan, Jianwei Wang, Manas Ranjan Gartia and Georgios Veronis

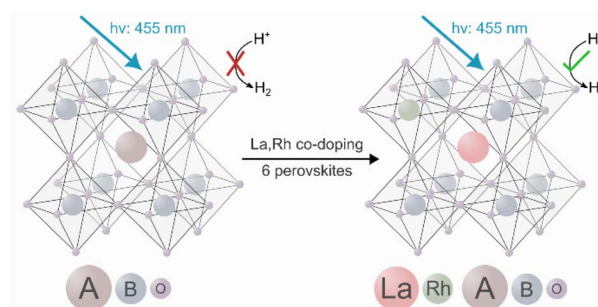


PAPERS

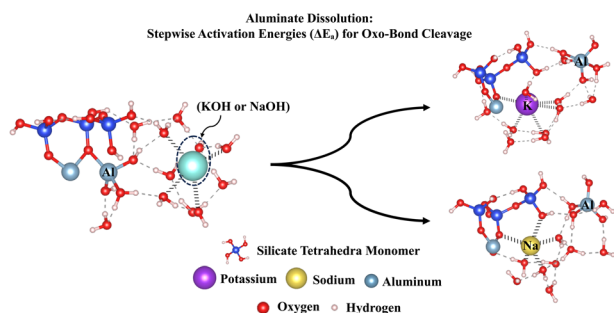
4313

Systematic investigation of ABO₃ perovskite synthesis to generalise a La and Rh co-doping strategy for visible light photocatalysis

Thomas D. Small, Mahmoud Adel Hamza, Yideng Shen, Cameron J. Shearer* and Gregory F. Metha*



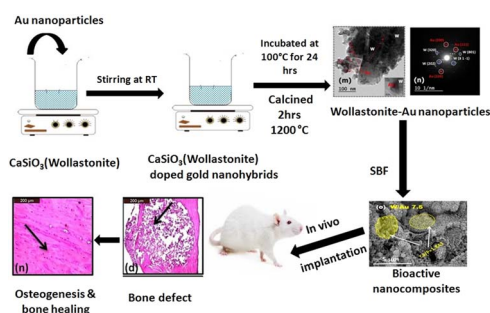
4325



Activation energy of aluminate dissolution in metakaolin: MLFF-accelerated DFT study of vdW and hydration shell effects

Mohammadreza Izadifar,* Neven Ukrainczyk, Klara Schönfeld and Eduardus Koenders

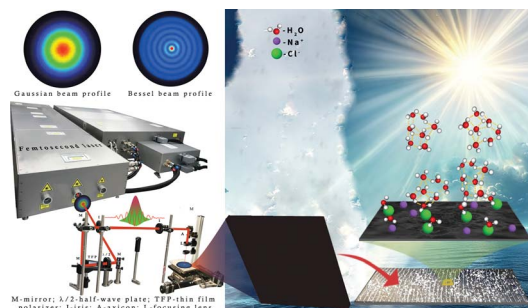
4336



Gold-doped wollastonite nanohybrids enhance bone regeneration via the bone morphogenetic protein-2, SMAD1, and Runt-related transcription factor-2 signalling pathway

Mona Moaness,* Ahmed N. Emam,* Abeer Salama, Manar M. Ahmed, Esmat M. A. Hamzawy, Areg E. Omar and Gehan T. El-Bassyouni

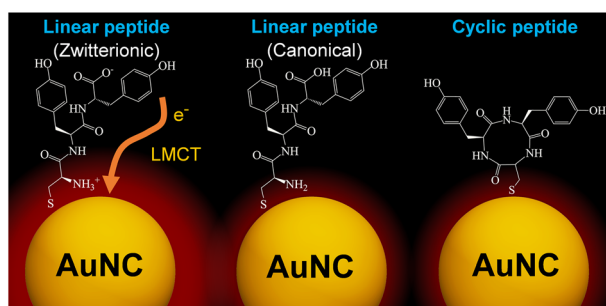
4352



Enhanced interfacial solar desalination using nano-engineered MoO_x photothermal evaporators

Asgar Ali, Muhammad Qasim,* Piotr A. Piatkowski, Ganjaboy Boltaev, Andra N. K. Reddy and Ali S. Alnaser*

4367



Molecular engineering of gold nanocluster properties via peptide ligand charge state and topological modulation

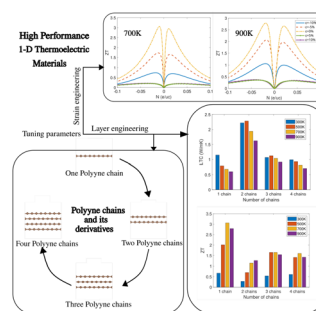
Pakawat Toomjeen, Unnop Srikulwong, Adulvit Chuaephon, Witthawat Phanchai, Cherdpong Choodet and Theerapong Puangmali*



4381

High-performance one-dimensional thermoelectric materials: polyynes and their derivatives

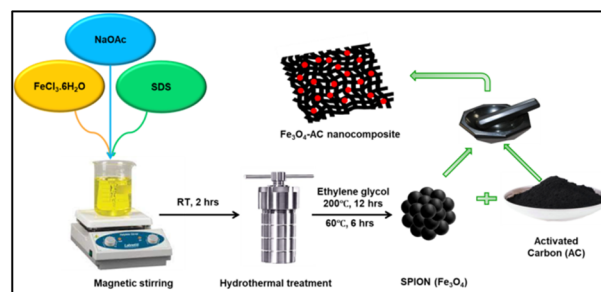
Karthik H. J. and Swastibrata Bhattacharyya*



4397

Advanced electrochemical detection and profiling of the antihypertensive drug atenolol via a SPION-activated carbon nanocomposite interface

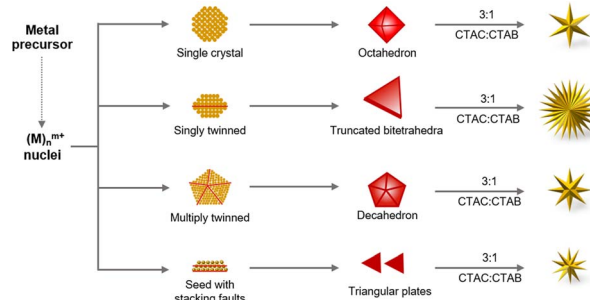
Ananya S. Agnihotri and Nidhin M*



4412

Connecting the nanosized defect structure and crystallinity with resulting nanoparticle products

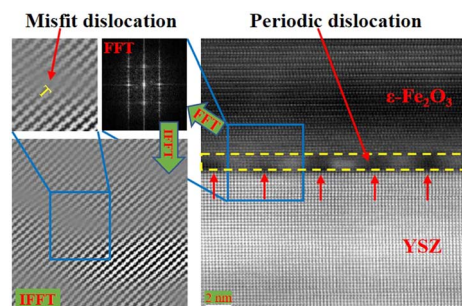
Debashree Roy, Helen C. Larson, Brandi M. Cossairt and Liane M. Moreau*



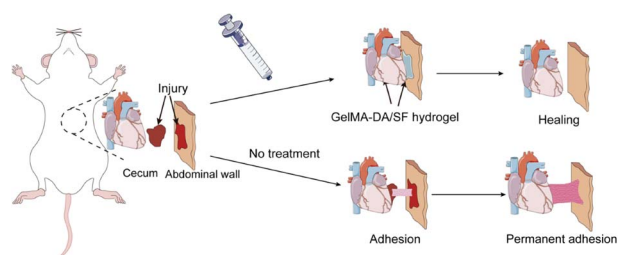
4419

Influence of misfit dislocations on the phase transition of iron(III) oxides

Van-Hien Hoang, Nam-Suk Lee and Heon-Jung Kim*



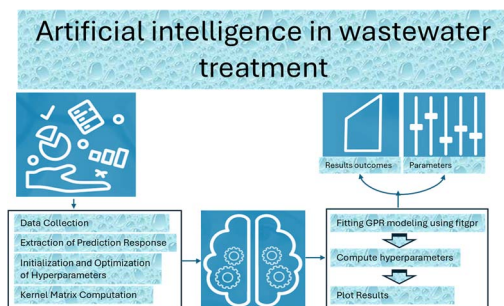
4425



A mussel-like, biodegradable natural hydrogel can effectively prevent adhesion after cardiac surgery

Jie Jiang, Liang Chen, Yan Zhang and Yan Liu*

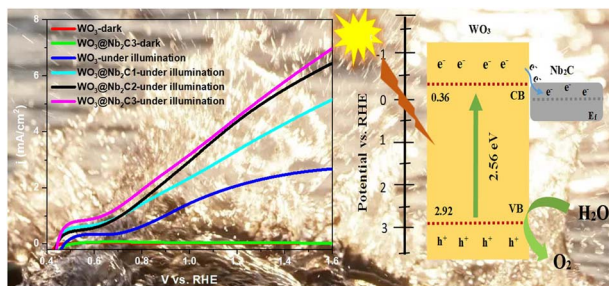
4436



A machine learning approach to wastewater treatment: Gaussian process regression and Monte Carlo analysis

Nimra Nadeem, Zubair Khaliq, Abdulaziz Bentalib, Muhammad Bilal Qadir, Fayyaz Ahmad,* Muhammad Wakil Shahzad* and Abdulrahman Bin Jumah

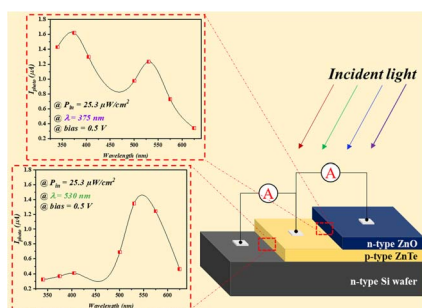
4450



WO₃/Nb₂CT_x MXene 2D–2D heterojunction as a high performance photoanode for photoelectrochemical water splitting

Maida Murtaza, Waqas Ali Shah and Amir Waseem*

4461



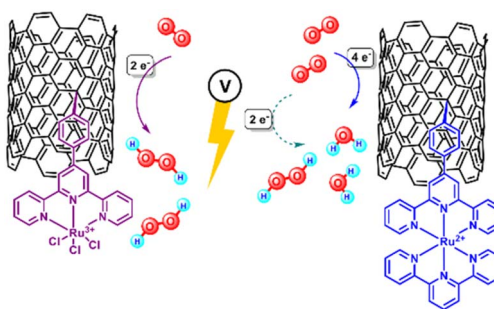
Fast-response self-powered double-heterojunction n-ZnO/p-ZnTe/n-Si photodetector

Ethar Yahya Salih,* Mohamed Hassan Eisa, Mustafa K. A. Mohammed, Asmiet Ramizy, Osamah Aldaghri, Raid A. Ismail and Khalid Hassan Ibaouf



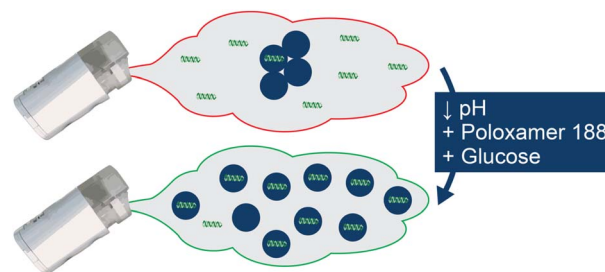
4469

Terpyridine-functionalized single-walled carbon nanotubes towards selectivity in the oxygen reduction reaction

Ioanna K. Sideri,^{*} Raul Arenal and Nikos Tagmatarchis^{*}

4480

RNA lipid nanoparticles stabilized during nebulization through excipient selection

Kai V. Slaughter, Daniela Isaacs-Bernal, Eric N. Donders, Siming Wang, Sami G. Sabbah, Xiang (Olivia) Li, Mickael Dang, Isaac M. Jackiw, Karen Y. T. Chan, Pieter Cullis and Molly S. Shoichet^{*}

4490

Mo–P bond-induced MoS₂ fast electron transfer improves the lithium storage performance of MoS₂–MoP heterojunction

Shasha Wang, Jiaqi Guo, Jiaqi Huo, Lu Wen, Jingyao Tang, Bo Cao and Yan Cheng^{*}