

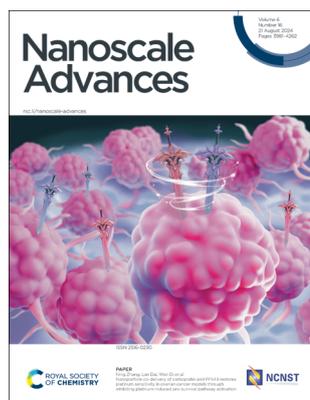
Nanoscale Advances

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 6(16) 3981–4262 (2024)



Cover
See Ning Zhang, Lan Dai, Wen Di *et al.*, pp. 4082–4093. Image reproduced by permission of Lan Dai from *Nanoscale Adv.*, 2024, **6**, 4082.

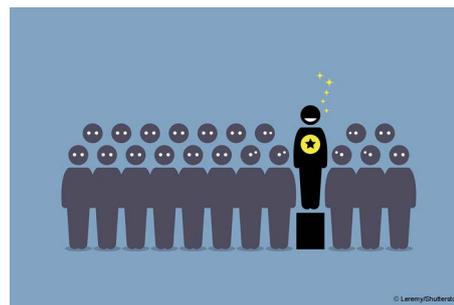


Inside cover
See K. Gayathri and R. Vidya, pp. 3992–4014. Image reproduced by permission of K. Gayathri and R. Vidya from *Nanoscale Adv.*, 2024, **6**, 3992.

EDITORIAL

3991

Outstanding Reviewers for *Nanoscale Advances* in 2023

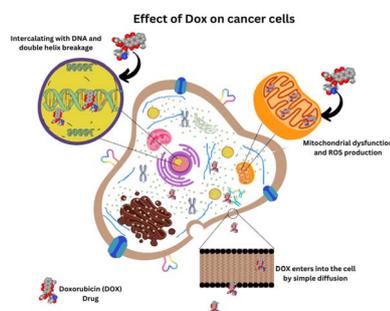


REVIEWS

3992

Carbon nanomaterials as carriers for the anti-cancer drug doxorubicin: a review on theoretical and experimental studies

K. Gayathri and R. Vidya*



ChemComm

Uncover new possibilities
with outstanding
preliminary research

Original discoveries, fuelling
every step of scientific progress

rsc.li/chemcomm

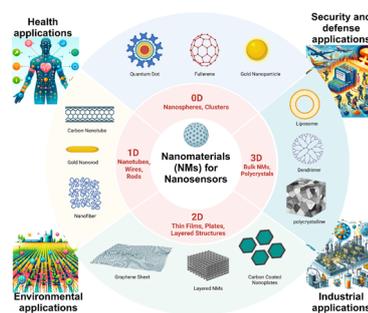
Fundamental questions
Elemental answers

REVIEWS

4015

Advancements in nanomaterials for nanosensors: a comprehensive review

Moustafa A. Darwish,* Walaa Abd-Elaziem, Ammar Elsheikh and Abdelhameed A. Zayed



4047

Recent advances in the biosynthesis of ZnO nanoparticles using floral waste extract for water treatment, agriculture and biomedical engineering

Duyen Thi Cam Nguyen, Ngoan Thi Thao Nguyen, Thuy Thi Thanh Nguyen and Thuan Van Tran*

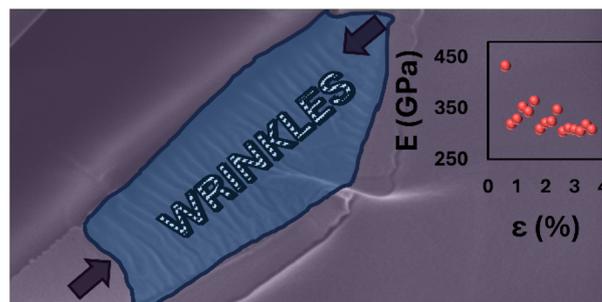


COMMUNICATIONS

4062

Strain engineering of the mechanical properties of two-dimensional WS₂

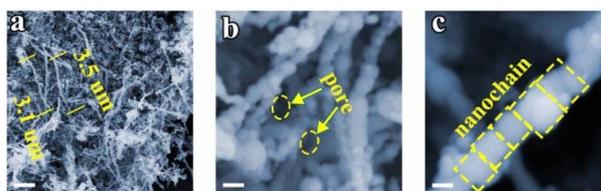
Yarden Mazal Jahn, Guy Alboteanu, Dan Mordehai and Assaf Ya'akovitz*



4071

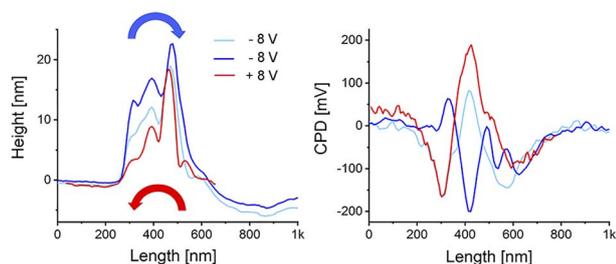
Accelerating the electron-transfer of nitrogen electro-fixation through assembling Fe nanoparticles into Fe nanochains

Rongkang Wang,* Jingyu Lu,* Xu Li and Chunyu Song



COMMUNICATIONS

4075

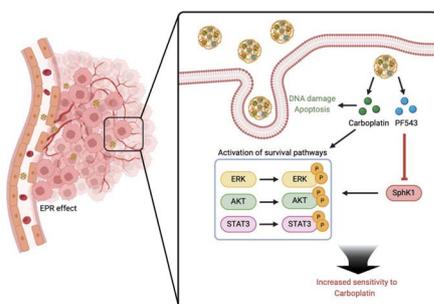


Modulations of the work function and morphology of a single MoS₂ nanotube by charge injection

Maja Remškar,* Janez Jelenc, Nikolai Czepurnyi, Matjaž Malok, Luka Pirker, Rupert Schreiner and Andreas K. Hüttel

PAPERS

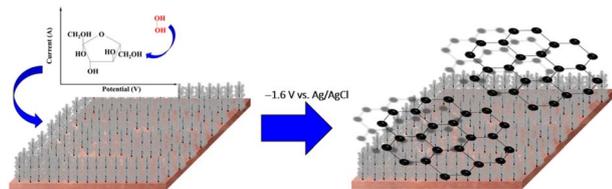
4082



Nanoparticle co-delivery of carboplatin and PF543 restores platinum sensitivity in ovarian cancer models through inhibiting platinum-induced pro-survival pathway activation

Chen Wang, Qing Li, Keqi Song, Wenjing Wang, Ning Zhang,* Lan Dai* and Wen Di*

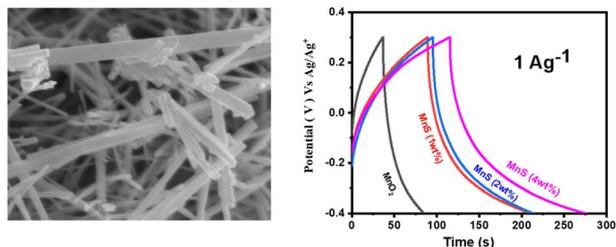
4094



Room temperature synthesis of 3D-nanocrystalline graphitic carbon from biomass-derived sugars, alcohols, and polyphenolic compounds

Wiyanti Fransisca Simanullang, Rungkiat Nganglumpoon, Suthasinee Watmanee, Piriya Pinthong, Weerachon Tolek, Yan Liu and Joongjai Panpranot*

4103



Improved electrochemical performance of defect-induced supercapacitor electrodes based on MnS-incorporated MnO₂ nanorods

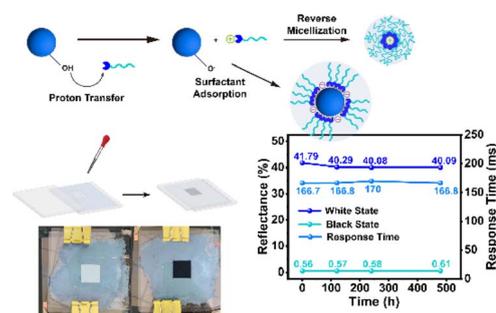
Mizanur Rahaman, Md. Roxy Islam and Muhammad Rakibul Islam*



4111

Adjusting the charging behavior of TiO₂ with basic surfactants in an apolar medium for electrophoretic displays

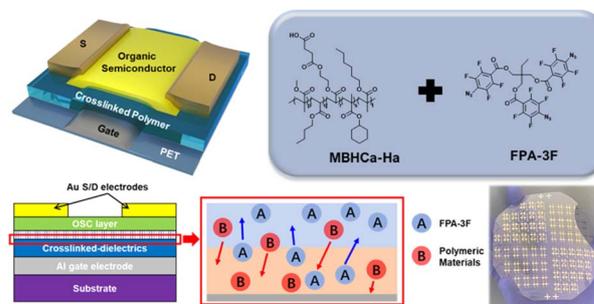
Yanfang Yu, Hongli Liu, Yinzhao Zhen, Ye Liu, Bonan Gao, Xianggao Li and Shirong Wang*



4119

Surface engineering of high-*k* polymeric dielectric layers with a fluorinated organic crosslinker for use in flexible-platform electronics

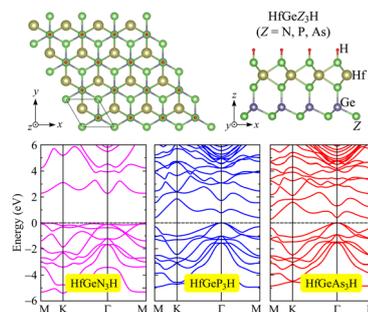
Heqing Ye, Hyeok-jin Kwon, Ka Yeon Ryu, Kaibin Wu, Jeongwan Park, Giri Babita, Inae Kim, Chanwoo Yang, Hoyoul Kong* and Se Hyun Kim*



4128

Large piezoelectric responses and ultra-high carrier mobility in Janus HfGeZ₃H (Z = N, P, As) monolayers: a first-principles study

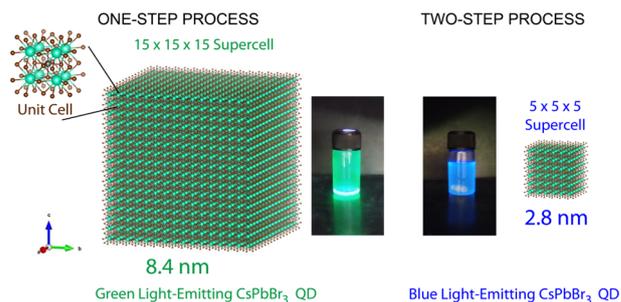
Tuan V. Vu, Huynh V. Phuc,* Le T. T. Phuong, Vo T. T. Vi, A. I. Kartamyshev and Nguyen N. Hieu*



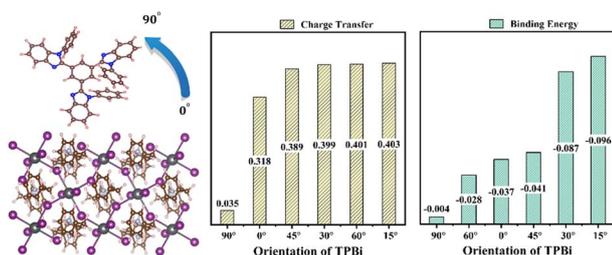
4137

Cesium lead bromide perovskite nanocrystals synthesized via supersaturated recrystallization at room temperature: comparison of one-step and two-step processes

Dula Adugna Idosa, Muluaalem Abebe, Dhakshnamoorthy Mani, Jibin Keloth Paduvilan, Lishin Thottathi, Aparna Thankappan, Sabu Thomas and Jung Yong Kim*



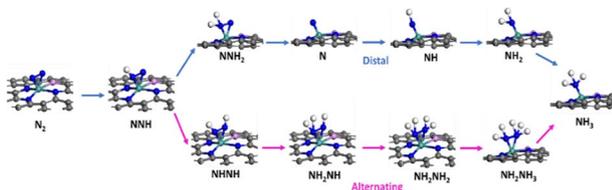
4149



Computational approaches to enhance charge transfer and stability in TPBi-(PEA)₂PbI₄ perovskite interfaces through molecular orientation optimization

Syed Muhammad Kazim Abbas Naqvi, Yanan Zhu,^{*} Hui Long, Zahid Nazir, Roman B. Vasiliev, Olga Kulakovich and Shuai Chang^{*}

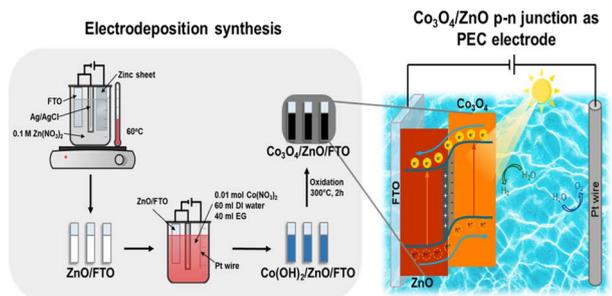
4160



Designing N, P-doped graphene surface-supported Mo single-atom catalysts for efficient conversion of nitrogen into ammonia: a computational guideline

Ghada E. Khedr, Samar M. Fawzy, Icell M. Sharafeldin and Nageh K. Allam^{*}

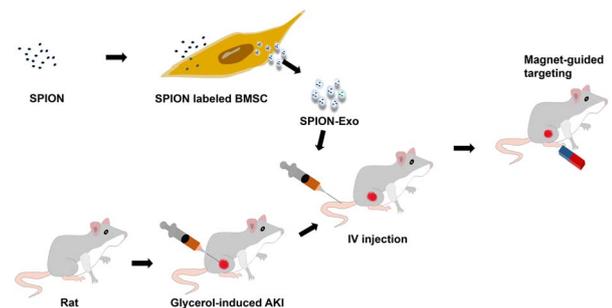
4167



Straightforward electrochemical synthesis of a Co₃O₄ nanopetal/ZnO nanoplate p-n junction for photoelectrochemical water splitting

Khanh Quang Nguyen, Hoang Thai Nguyen, Thach Khac Bui, Tien-Thanh Nguyen and Viet Van Pham^{*}

4180



Targeted treatment of rat AKI induced by rhabdomyolysis using BMSC derived magnetic exosomes and its mechanism

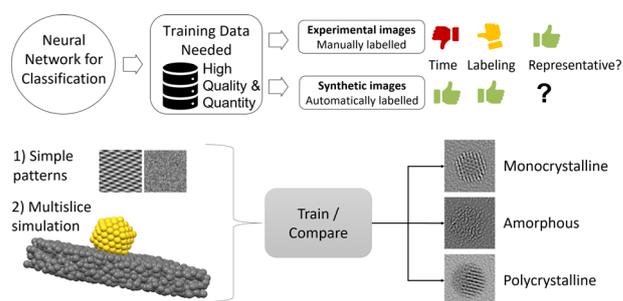
Yuling Chen^{*} and Shike Hou



4196

Simulated HRTEM images of nanoparticles to train a neural network to classify nanoparticles for crystallinity

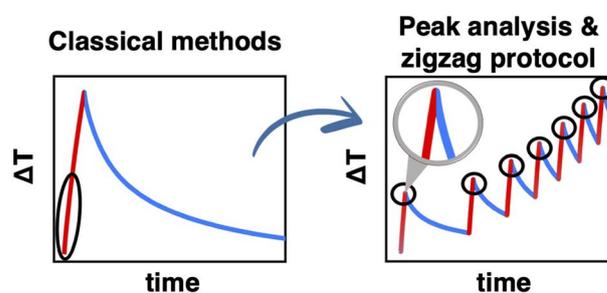
Nina Gumbiowski, Juri Barthel, Kateryna Loza, Marc Heggen and Matthias Eppl*



4207

Beyond Newton's law of cooling in evaluating magnetic hyperthermia performance: a device-independent procedure

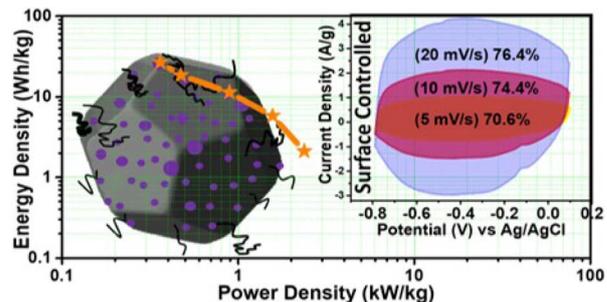
Sergiu Ruta,* Yilian Fernández-Afonso, Samuel E. Rannala, M. Puerto Morales, Sabino Veintemillas-Verdaguer, Carlton Jones, Lucía Gutiérrez,* Roy W. Chantrell and David Serantes



4219

Analyzing the charge contributions of metal–organic framework derived nanosized cobalt nitride/carbon composites in asymmetrical supercapacitors

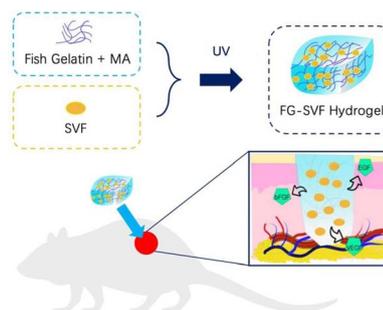
Vishal Shrivastav,* Mansi, Prashant Dubey, Umesh K. Tiwari, Akash Deep, Wojciech Nogala* and Shashank Sundriyal*



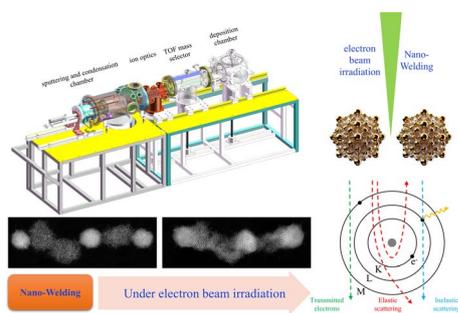
4230

A tilapia skin-derived gelatin hydrogel combined with the adipose-derived stromal vascular fraction for full-thickness wound healing

Yanan Luo, Manfei Fu, Ziyi Zhou, Xiaopei Zhang, Qingxia Guo, Yawen Wang, Weina Zhang, Yuanfei Wang,* Zhenyu Chen* and Tong Wu*



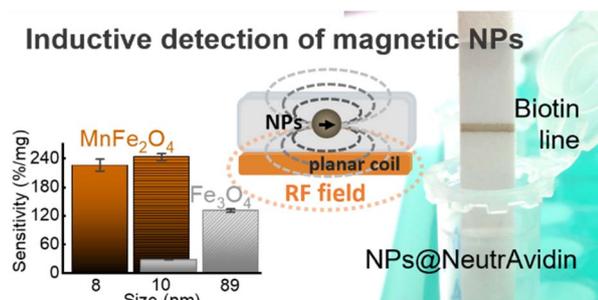
4237



Coalescence behavior of size-selected gold and tantalum nanoclusters under electron beam irradiation: insights into nano-welding mechanisms

Shengyong Hu, Syed Adil Shah, Syed Niaz Ali Shah, Zixiang Zhao, Wuwen Zhu, Yongxin Zhang, Siqi Lu, Sichen Tang, Kuo-Juei Hu* and Fengqi Song*

4247



Mn-ferrite nanoparticles as promising magnetic tags for radiofrequency inductive detection and quantification in lateral flow assays

Vanessa Pilati,* María Salvador, Leyre Bei Fraile, José Luis Marqués-Fernández, Franciscarlos Gomes da Silva, Mona Fadel, Ricardo López Antón, María del Puerto Morales, José Carlos Martínez-García and Montserrat Rivas

4259

Correction: Beyond Newton's law of cooling in evaluating magnetic hyperthermia performance: a device-independent procedure

Sergiu Ruta,* Yilian Fernández-Afonso, Samuel E. Rannala, M. Puerto Morales, Sabino Veintemillas-Verdaguer, Carlton Jones, Lucía Gutiérrez,* Roy W. Chantrell and David Serantes

