Nanoscale Advances

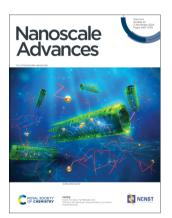
An open access journal publishing across the breadth of nanoscience and nanotechnology

rsc.li/nanoscale-advances

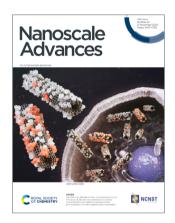
The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2516-0230 CODEN NAADAI 6(22) 5467-5738 (2024)



Cover See Naoki Tomioka. Yu Matsuda et al.. pp. 5579-5584. Image reproduced by permission of Yu Matsuda from Nanoscale Adv., 2024, 6, 5579.



Inside cover See Tae Geol Lee. Min Beom Heo, Jin Gyeong Son et al., pp. 5585-5597. Image reproduced by permission of Jin Gyeong Son from

Nanoscale Adv., 2024, 6, 5585.

EDITORIAL

Supramolecular chirality in self-organised systems and thin films

G. Giancane, S. Bettini and L. Valli

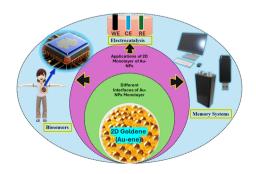


REVIEWS

5478

Gold on the horizon: unveiling the chemistry, applications and future prospects of 2D monolayers of gold nanoparticles (Au-NPs)

Tholkappiyan Ramachandran,* Ashraf Ali, Haider Butt, Lianxi Zheng, Firdous Ahmad Deader and Moh'd Rezeg*







At the heart of open access for the global chemistry community

Editor-in-chief

Russell J Cox

Leibniz Universität Hannover, Germany

We stand for:



Breadth We publish work in all areas of chemistry and reach a global readership



Quality Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



Affordability Low APCs, discounts and waivers make publishing open access achievable and sustainable



Community Led by active researchers, we publish quality work from scientists at every career stage, and all countries

Submit your work now

rsc.li/rsc-advances

@RSC_Adv

Article Online

REVIEWS

5511

Beyond aromatherapy: can essential oil loaded nanocarriers revolutionize cancer treatment?

Obaydah Abd Alkader Alabrahim, Jude Majed Lababidi, Wolfgang Fritzsche and Hassan Mohamed El-Said Azzazy*

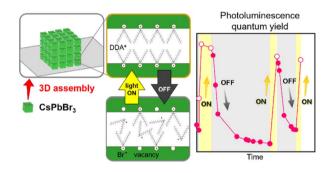


COMMUNICATIONS

5563

Assembly-promoted repeatable enhancement of photoluminescence from cesium lead tribromide nanocubes under light illumination

Shota Hashimoto, Hiroto Watanabe, Yoshiki Iso, Yuya Oaki, Tetsuhiko Isobe and Hiroaki Imai*



5568

Unveiling the catalytic potency of a novel hydrazone-linked covalent organic framework for the highly efficient one-pot synthesis of 1,2,4triazolidine-3-thiones

Pankaj Teli, Shivani Soni, Sunita Teli and Shikha Agarwal*

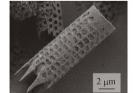


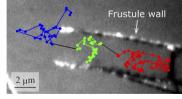
PAPERS

5579

Diffusion of individual nanoparticles in cylindrical diatom frustule

Naoki Tomioka,* Yusaku Abe and Yu Matsuda*





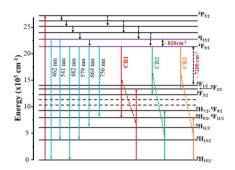
5585



Influence of albumin concentration on surface characteristics and cellular responses in the preincubation of multi-walled carbon nanotubes

Sun Young Lee, Jae Won Choi, Tae Geol Lee,* Min Beom Heo* and Jin Gyeong Son*

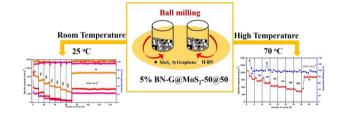
5598



Optical properties and Judd-Ofelt analysis of Dy3+ doped CoAl₂O₄ nanocrystals

N. T. Hien, N. T. Kien, V. H. Yen, T. Ngoc, P. V. Do, V. X. Phuc and N. X. Ca*

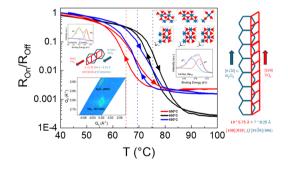
5612



A 2D hybrid nanocomposite: a promising anode material for lithium-ion batteries at high temperature

Bongu Chandra Sekhar, Abdelrahman Soliman, Muhammad Arsalan and Edreese H. Alsharaeh*

5625



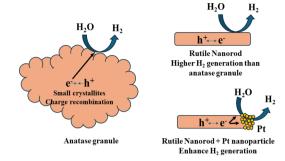
Tunable insulator-metal transition in epitaxial VO₂ thin films via strain and defect engineering

Aditya Kamat, Gurukrishna K., Rishow Kumar, Abhishek Mishra, Amit Kumar Verma, Shivam Tripathi, Ashish Garg and Shikhar Misra*

5636

Impact of polymorphism vs. shape of titania nanocrystals on the hydrogen evolution reaction

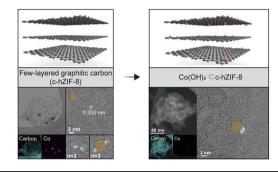
Ankur Yadav, Vivek Kumar Agrahari, Yuriy Pihosh, Mamiko Nakabayashi, Wojciech Nogala, Balendu Sekhar Giri, Kazunari Domen, Daya Shankar Pandey,* Bhavana Gupta* and Subha Sadhu*



5646

Designing few-layered graphitic carbons with atomic-sized cobalt hydroxide by harnessing hollow metal-organic frameworks

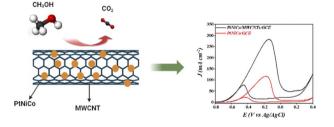
Eun Jin Cho, Bo-Min Kim, WooYeon Moon, Dong Gyu Park, Young-Wan Ju, Won Ho Choi* and Jeeyoung Shin*



5654

Environmentally friendly PtNiCo nanocatalysts enhanced with multi-walled carbon nanotubes for sustainable methanol oxidation in an alkaline medium

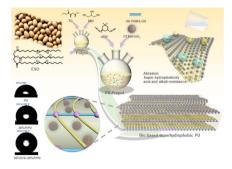
Merve Akin, Anas El Attar, Ramazan Bayat, Muhammed Bekmezci, Badr Bouljoihel, Mama El Rhazi and Fatih Sen*



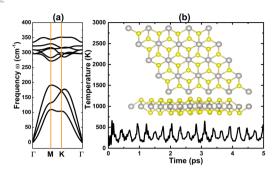
5663

A highly reactive soybean oil-based superhydrophobic polyurethane film with long-lasting antifouling and abrasion resistance

Junming Huang, Genzheng Sha, Minghui Cui, Mengqiu Quan, Yuqing Wang, Yao Lu,* Jin Zhu and Jing Chen*



5671



A systematic study of TMO_n (TM = V, Cr, Mn, and Fe; n = 3 and 6) clusters embedded in a PtS_2 monolayer

Nguyen Thanh Tien, J. Guerrero-Sanchez and D. M. Hoat*

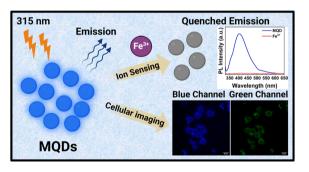
5681



3D nanoplasmonic structure for ultrahigh enhanced SERS with less variability, polarization independence, and multimodal sensing applied to picric acid detection

Anand M. Shrivastav, Mohammad Abutoama and Ibrahim Abdulhalim*

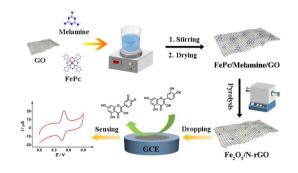
5694



L-cysteine capped MoS₂ QDs for dual-channel imaging and superior Fe³⁺ ion sensing in biological systems

Vishakha Takhar, Simranjit Singh, Superb K. Misra and Rupak Banerjee*

5708



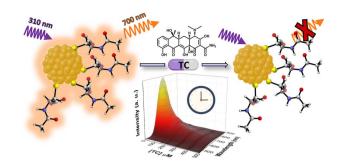
A catalytic amplification platform based on Fe_2O_3 nanoparticles decorated graphene nanocomposites for highly sensitive detection of rutin

Zhuzhen Chen, Tingting Zhang, Xue Zhang, Wangxing Cheng,* Linwei Chen* and Nannan Lu*

5718

Harnessing sustainable nanoclusters for sensitive optical detection of tetracyclines and the underlying mechanism

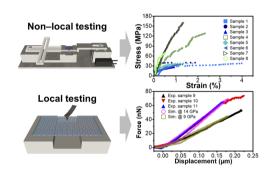
Miguel Justo-Tirado, Irene Pérez-Herráez. Jorge Escorihuela, Raúl Arenal, Elena Zaballos-García* and Julia Pérez-Prieto*



5727

Mechanical properties of freestanding few-layer graphene/boron nitride/polymer heterostacks investigated with local and non-local techniques

Marcus Lespasio, Elena Missale, Bashar Aziz, Yoosuk Kim, Giorgio Speranza, Ralu Divan, David J. Gosztola, Chi-Hou Lei, Maria F. Pantano* and Irma Kuljanishvili*



RETRACTIONS

5735

Retraction: Sequestration of chromium(vi) and nickel(ii) heavy metals from unhygienic water via sustainable and innovative magnetic nanotechnology

Noor Zulfigar,* Monireh Shariatipour and Fawad Inam

5736

Retraction: Photo-responsive hole formation in the monolayer membrane wall of a supramolecular nanotube for quick recovery of encapsulated protein

N. Kameta,* Y. Kikkawa and Y. Norikane