

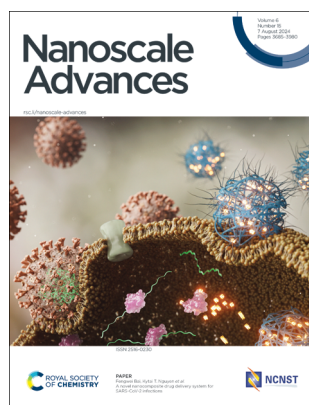
Nanoscale Advances

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(15) 3685–3980 (2024)



Cover
See Fengwei Bai, Kytai T. Nguyen *et al.*, pp. 3747–3758. Image reproduced by permission of Ehsan Faridi and Kytai T. Nguyen from *Nanoscale Adv.*, 2024, 6, 3747.



Inside cover
See Song Feng, Lingchen Liu, Jianing Lin, Bin Zhang *et al.*, pp. 3759–3774. Image reproduced by permission of Song Feng from *Nanoscale Adv.*, 2024, 6, 3759.

EDITORIAL

3695

Introduction to Photocatalytic Materials for Clean Energy, Renewable Chemicals production, and Sustainable Catalysis

Rajeev Ahuja* and Rajendra Srivastava*

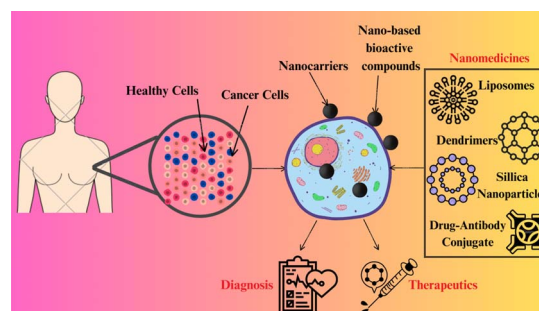


REVIEWS

3699

Nanoparticle-mediated diagnosis, treatment, and prevention of breast cancer

Lipsa Leena Panigrahi, Pallavi Samal, Sameer Ranjan Sahoo, Banishree Sahoo, Arun Kumar Pradhan, Sailendra Mahanta, Sandip Kumar Rath and Manoranjan Arakha*



ChemComm

Uncover new possibilities
with outstanding
preliminary research

Original discoveries, fuelling
every step of scientific progress

rsc.li/chemcomm

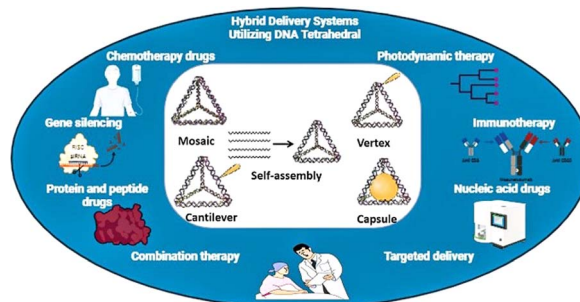
Fundamental questions
Elemental answers

REVIEWS

3714

Revolutionizing cancer therapy using tetrahedral DNA nanostructures as intelligent drug delivery systems

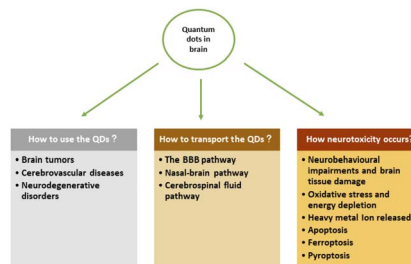
Ayushi Sharma, Payal Vaswani and Dhiraj Bhatia*



3733

Application of quantum dots in brain diseases and their neurotoxic mechanism

Yuanyuan Hu, Xiaoli Wang, Yiru Niu, Keyu He* and Meng Tang*



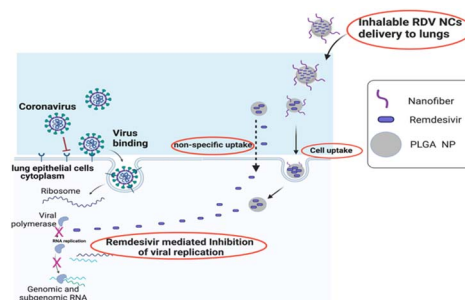
Application of Quantum Dots in Brain Diseases and its Neurotoxic Mechanism

PAPERS

3747

A novel nanocomposite drug delivery system for SARS-CoV-2 infections

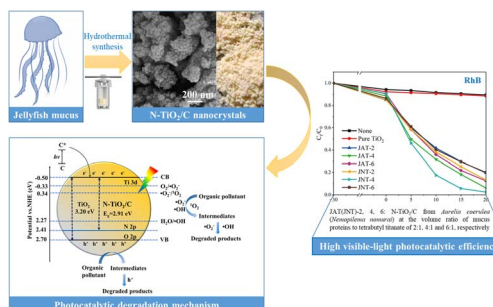
Uday Chintapula, Shazeed-Ul Karim, Priyanka Raghunathan Iyer, Haritha Asokan-Sheeja, Biswas Neupane, Farzana Nazneen, He Dong, Fengwei Bai* and Kytai T. Nguyen*



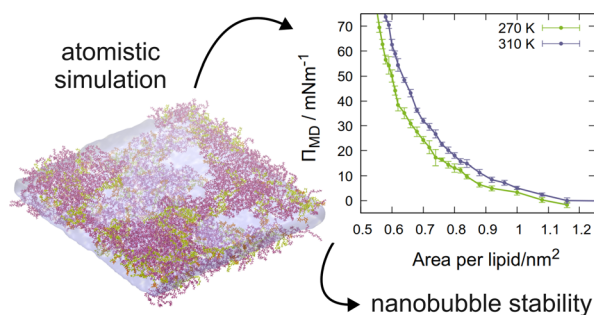
3759

Bio-inspired synthesis of N-doped TiO₂/C nanocrystals using jellyfish mucus with high visible-light photocatalytic efficiency

Song Feng,* Lingchen Liu,* Jianing Lin,* Ziwei Wang, Jinzeng Gu, Lutao Zhang, Bin Zhang* and Song Sun



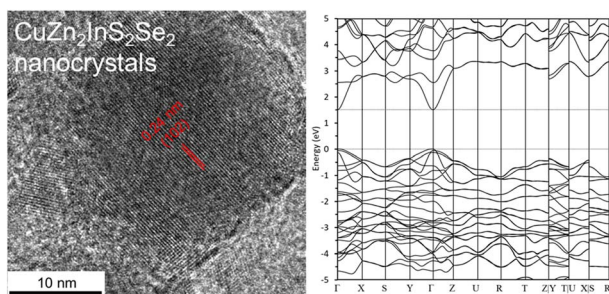
3775



Ruptures of mixed lipid monolayers under tension and supercooling: implications for nanobubbles in plants

Stephen Ingram,^{*} Bernhard Reischl, Timo Vesala and Hanna Vehkamäki

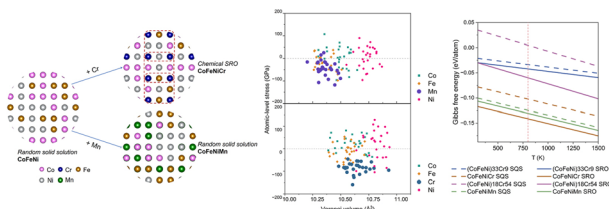
3785



Multinary light absorbing semiconductor nanocrystals with diversified electronic and optical properties

Soubantika Palchoudhury,^{*} Benjamin T. Diroll, Panchapakesan Ganesh, Jessica Cobos, Sohini Sengupta and Jingsong Huang^{*}

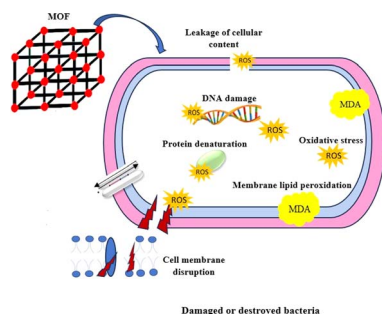
3793



Unveiling the mechanism of tuning elemental distribution in high entropy alloys and its effect on thermal stability

Panhua Shi, Yiyang Yang, Baodian Yao, Jiaxuan Si and Yuexia Wang^{*}

3801



Enhanced antibacterial activity of a novel silver-based metal organic framework towards multidrug-resistant *Klebsiella pneumoniae*

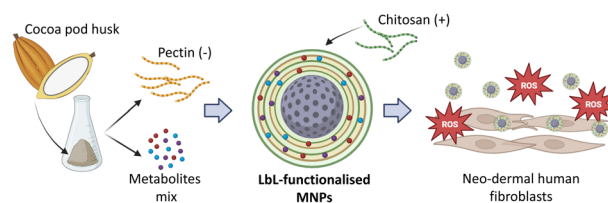
Payam B. Hassan, Sameera Sh. Mohammed Ameen, Lana Mohammed, Sirwan M. Muhammed Ameen and Khalid M. Omer^{*}



3809

Exploiting residual cocoa biomass to extract advanced materials as building blocks for manufacturing nanoparticles aimed at alleviating formation-induced oxidative stress on human dermal fibroblasts

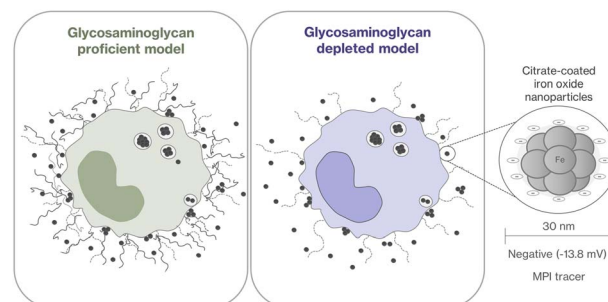
Joel Girón-Hernández,* Yeison Barrios Rodríguez, Noemi Corbezzolo, Dayana Orozco Blanco, Carlos Carranza Gutiérrez, William Cheung and Piergiorgio Gentile*



3825

Rapid cellular uptake of citrate-coated iron oxide nanoparticles unaffected by cell-surface glycosaminoglycans

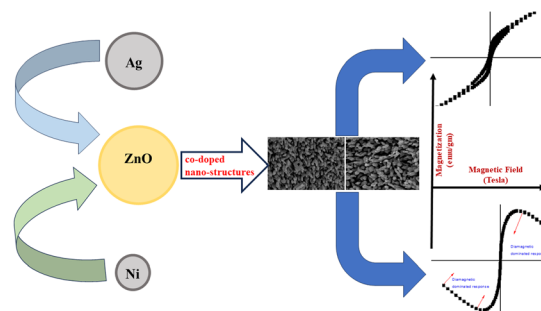
Lena Kampen,* Amani Remmo, Shailey Gale Twamley, Andrea Weller, Anke Stach, Paul Turko, Norbert Löwa, Frank Wiekhorst and Antje Ludwig*



3838

Spectroscopic analysis of nanosized Zn(Ag, Ni)O systems and observation of superparamagnetism at low temperature

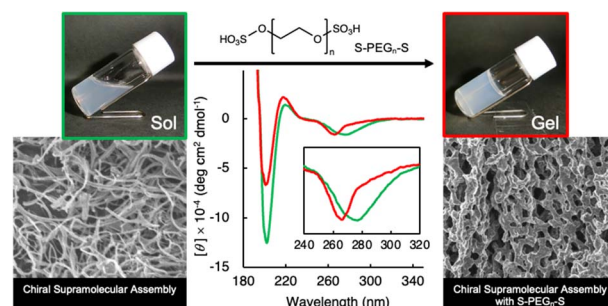
Kamakhya Prakash Misra, Saikat Chattopadhyay,* Atul Bandyopadhyay, Albin Antony, Ashok Rao, P. Poornesh,* J. Jedryka, K. Ozga, B. Kucharska, Yanting Yin, Gunther Andersson, Arunava Agarwala and Yung-Kang Kuo



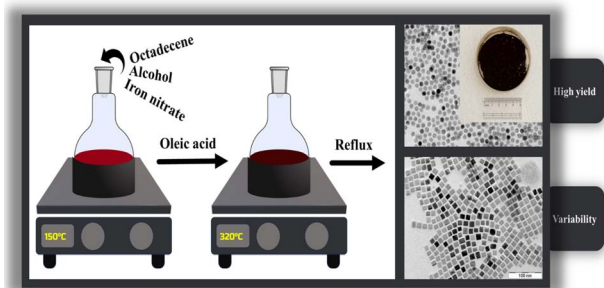
3850

Nanofibrous chiral supramolecular assembly-derived self-healing hydrogels with polyethylene glycol

Makoto Takafuji,* Kenji Kawamoto, Nanami Hano, Mako Otsuki and Hirotaka Ihara*



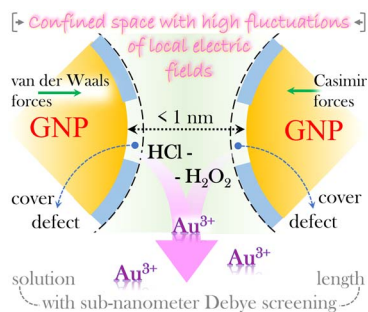
3857



Low-cost one-pot synthesis of hydrophobic and hydrophilic monodispersed iron oxide nanoparticles

Sohel Reja,* Manoj Kumar and Sukumaran Vasudevan

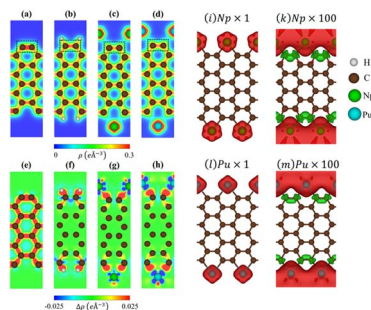
3865



Agglomeration compaction promotes corrosion of gold nanoparticles

Borys A. Snopok,* Shavkat N. Nizamov, Tetiana V. Snopok and Vladimir M. Mirsky

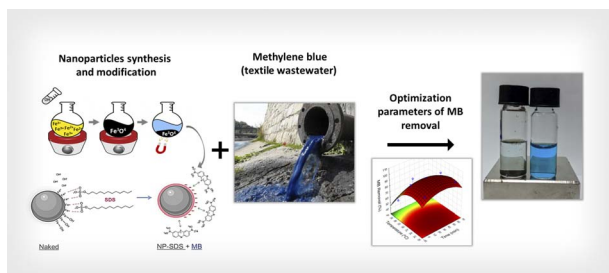
3878



Electronic, magnetic, and optical properties of Np and Pu decorated armchair graphene nanoribbons: a DFT study

Nguyen Thi Han,* K. Dien Vo, Tu Le Manh, Ong Kim Le and Dinh Thuy Van

3887



Methylene blue removal using a nanomagnetic support: a response surface approach

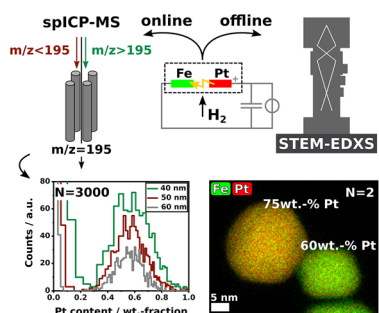
Thais Ribeiro do Nascimento Moraes Calazans, Ana Carolina de Lima Barizão, Thais de Andrade Silva, Fabiana Vasconcelos Campos, Sérgio Tullio Alves Cassini, Araceli Veronica Flores Nardy Ribeiro, Madson de Godoi Pereira, Marco Cesar Cunegundes Guimarães, Jairo Pinto de Oliveira* and Joselito Nardy Ribeiro



3895

Synergizing ICP-MS, STEM-EDXS, and SMPS single particle analytics exemplified by superlattice L₁₀ Pt/Fe aerosol nanoparticles produced by spark ablation

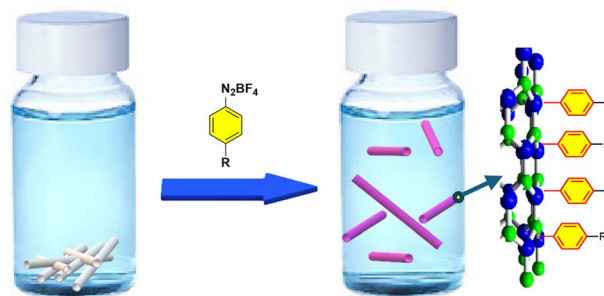
Vinzent Olszok,* Philipp Rembe, Tim Grieb, Eshan J. Wijeyeratnam, Andreas Rosenauer and Alfred P. Weber



3904

Facile covalent functionalization of boron nitride nanotubes *via* coupling reaction

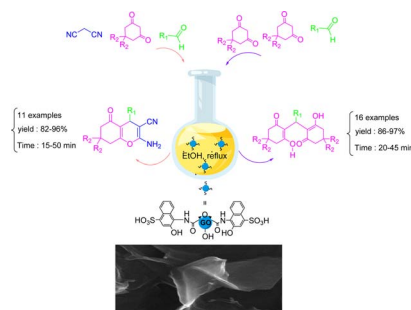
Thang Quoc Huynh, Minsung Kang, Jeung Gon Kim* and Seokhoon Ahn*



3911

Functionalized graphene oxide by 4-amino-3-hydroxy-1-naphthalenesulfonic acid as a heterogeneous nanocatalyst for the one-pot synthesis of tetraketone and tetrahydrobenzo[*b*]pyran derivatives under green conditions

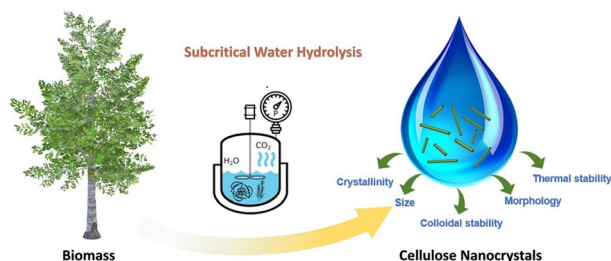
Sara Gharghish, Mohammad G. Dekamin* and Sepideh Hasanzadeh Banakar



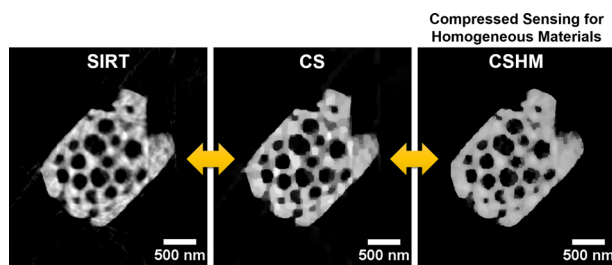
3923

Subcritical water digestion of woody biomass: extraction of cellulose nanomaterials under acid-lean condition

Ruby Osei-Bonsu, Mahfuzul Hoque, Philip S. McMichael and E. Johan Foster*



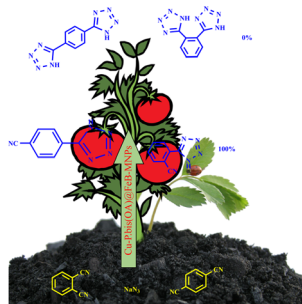
3934



Improving reconstructions in nanotomography for homogeneous materials via mathematical optimization

Sebastian Kreuz, Benjamin Apeleo Zubiri,* Silvan Englisch, Moritz Buwen, Sung-Gyu Kang, Rajaprakash Ramachandramoorthy, Erdmann Spiecker, Frauke Liers and Jan Rolfes*

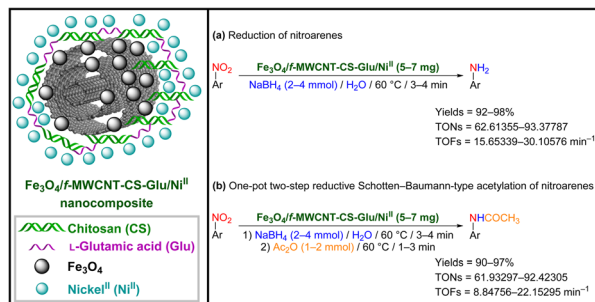
3948



A multidentate copper complex on magnetic biochar nanoparticles as a practical and recoverable nanocatalyst for the selective synthesis of tetrazole derivatives

Marwan Majeed Maseer, Tavan Kikhavani* and Bahman Tahmasbi*

3961



Ni^{II}-containing L-glutamic acid cross-linked chitosan anchored on Fe₃O₄/f-MWCNT: a sustainable catalyst for the green reduction and one-pot two-step reductive Schotten–Baumann-type acetylation of nitroarenes

Hossein Mousavi,* Behzad Zeynizadeh and Morteza Hasanpour Galehban

