

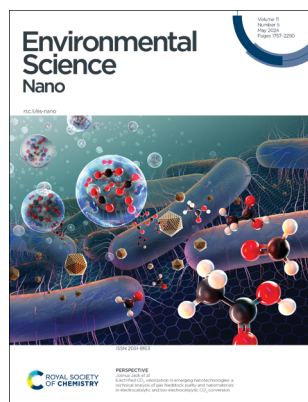
Environmental Science Nano

rsc.li/es-nano

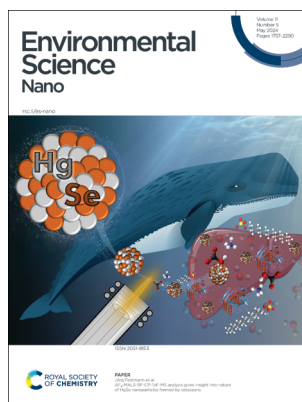
The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2051-8153 CODEN ESNNAA 11(5) 1757-2290 (2024)



Cover
See Joshua Jack *et al.*,
pp. 1770–1783.
Image reproduced by
permission of Joshua Jack
from *Environ. Sci.: Nano*,
2024, 11, 1770.



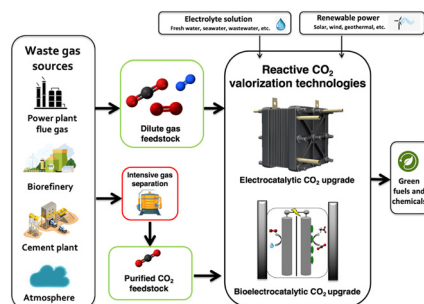
Inside cover
See Jörg Feldmann *et al.*,
pp. 1883–1890.
Image reproduced by
permission of Jörg Feldmann
on behalf of the co-authors
from *Environ. Sci.: Nano*,
2024, 11, 1883.

PERSPECTIVE

1770

Electrified CO₂ valorization in emerging nanotechnologies: a technical analysis of gas feedstock purity and nanomaterials in electrocatalytic and bio-electrocatalytic CO₂ conversion

Joshua Jack,* Aidan Weber, Sara Bolzman
and Stephen McCord

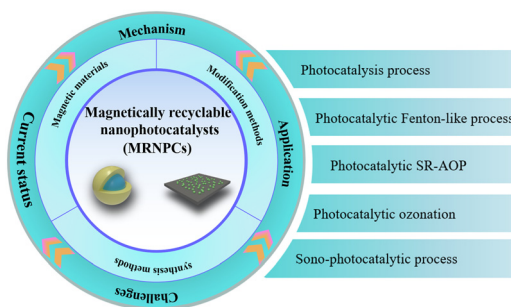


CRITICAL REVIEWS

1784

Magnetically recyclable nanophotocatalysts in photocatalysis-involving processes for organic pollutant removal from wastewater: current status and perspectives

Zexiao Zheng, Juhua He, Zuyao Zhang, Ashutosh Kumar,
Musharib Khan, Cheuk Wai Lung and Irene M. C. Lo*



Environmental Science: Atmospheres

GOLD
OPEN
ACCESS

Connecting communities
and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers



Registered charity number: 207890

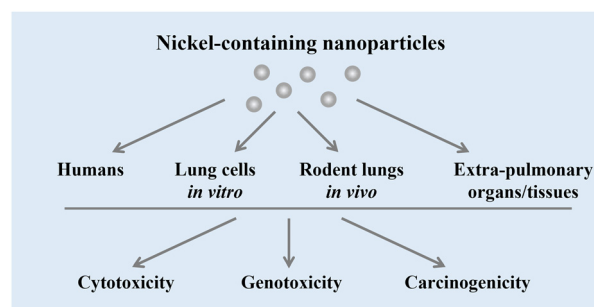


CRITICAL REVIEWS

1817

The pulmonary effects of nickel-containing nanoparticles: cytotoxicity, genotoxicity, carcinogenicity, and their underlying mechanisms

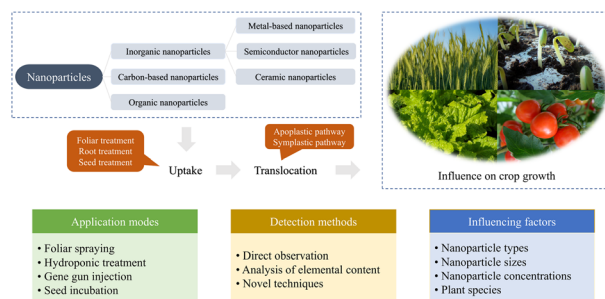
Yiqun Mo, Yue Zhang and Qunwei Zhang*



1847

Classification, uptake, translocation, and detection methods of nanoparticles in crop plants: a review

He-Yi Zhang and Wen-Hao Su*

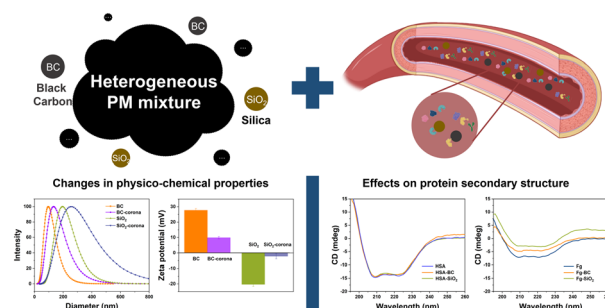


COMMUNICATION

1871

Characterization of black carbon and silica nanoparticle interactions with human plasma proteins

Si-si Chen, Hong-juan Chen, Xue-wen Guo, Wei-juan Zheng and Hong-zhen Lian*

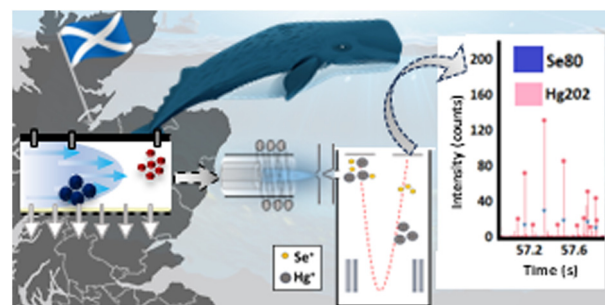


PAPERS

1883

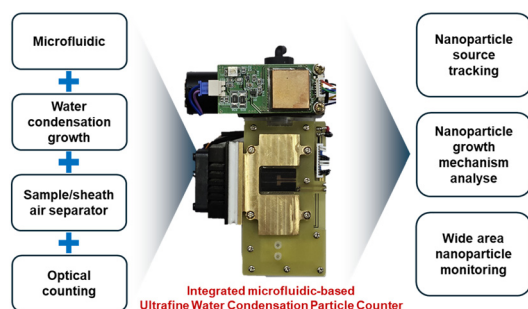
AF₄-MALS-SP ICP-ToF-MS analysis gives insight into nature of HgSe nanoparticles formed by cetaceans

Lhiam Paton, Thebny Thaise Moro, Thomas Lockwood, Tatiane de Andrade Maranhão, Gerhard Gössler, David Clases and Jörg Feldmann*



PAPERS

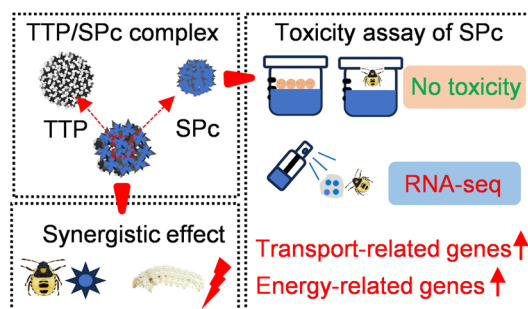
1891



Integrated microfluidic-based ultrafine water condensation particle counter (UWCPC) for monitoring of airborne nanoparticle generation and growth mechanisms

Seong-Jae Yoo and Yong-Jun Kim*

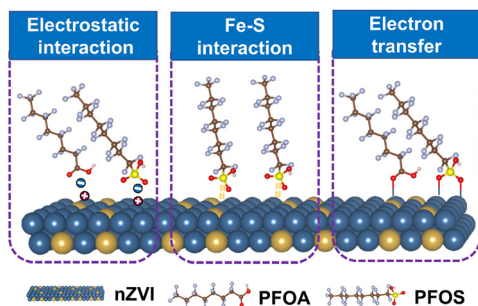
1902



Construction of a nontoxic nano-pesticide and its co-application with natural predators for perfect cooperative pest management: an innovative strategy for pesticide reduction

Shangyuan Wu, Qinhong Jiang, Chunyang Huang, Hailin Yang, Changhua Zhang, Meizhen Yin, Jie Shen, Shuo Yan* and Hu Li*

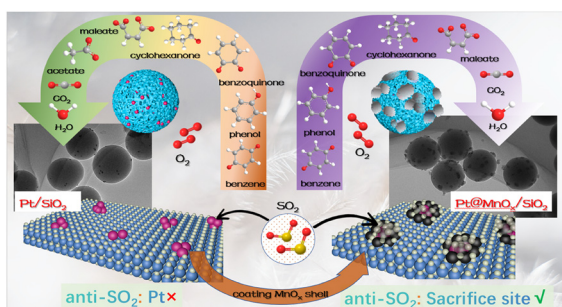
1915



Selective perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) adsorption by nanoscale zero-valent iron (nZVI): performance and mechanisms

Junhua Fang, Kairan Xu, Airon Liu, Yinghao Xue, Luna Tie, Zilong Deng,* Rongliang Qiu and Wei-xian Zhang

1926



Constructing a core-shell Pt@MnO_x/SiO₂ catalyst for benzene catalytic combustion with excellent SO₂ resistance: new insights into active sites

Dan Yang, Fang Dong,* Jie Wang, Zhicheng Tang* and Jiye Zhang*

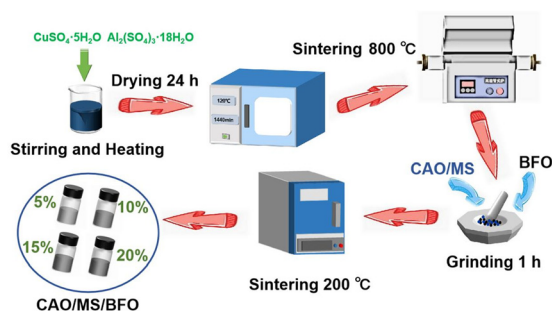


PAPERS

1948

A novel $\text{CuAl}_2\text{O}_4/\text{MoS}_2/\text{BaFe}_{12}\text{O}_{19}$ magnetic photocatalyst simultaneously coupling type I and Z-scheme heterojunctions for the sunlight-driven removal of tetracycline hydrochloride

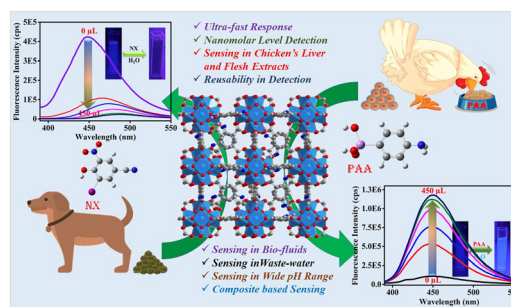
Mengjun Han, Shifa Wang,* Xinmiao Yu, Xianlun Yu, Huajing Gao, Xianju Zhou, Dengfeng Li, Leiming Fang, Jagadeesha Angadi V., Mohd Ubaidullah and Bidhan Pandit



1967

Regulating water decontamination and food safety by a reusable, nano-sized MOF@cotton@chitosan composite through nanomolar detection of the drug nitroxinil and organoarsenic feed additive *p*-arsanilic acid

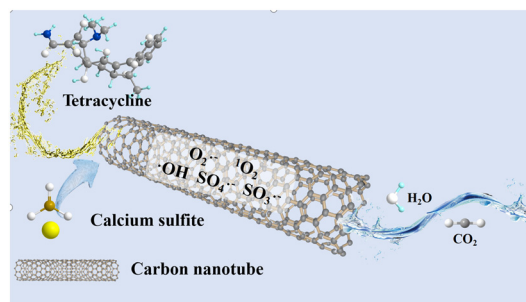
Subhrajyoti Ghosh, Debjit Mal and Shyam Biswas*



1978

Carbon nanotubes as a nanocatalyst and nanoreactor for the efficient treatment of pharmaceutical wastewater via CaSO_3 activation

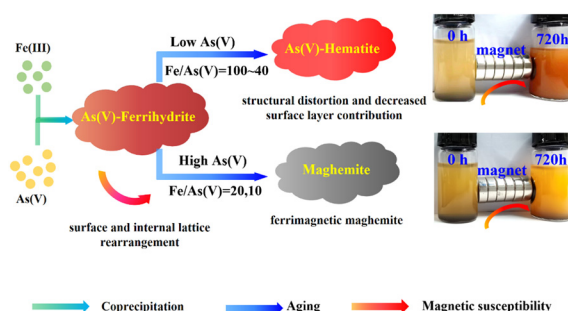
Haoqi Wang, Xiaohong Liu, Yanlan Wang, Yiqun Tian, Yingping Huang, Di Huang* and Xiang Liu*



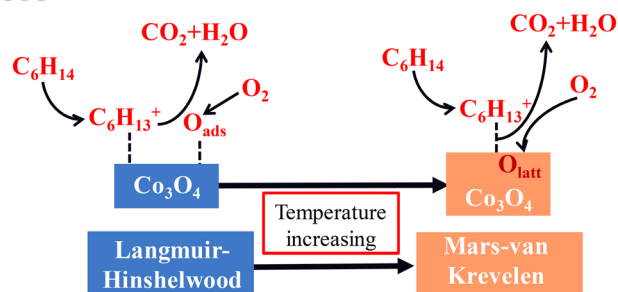
1985

Magnetic and structural characteristics associated with the transformation of As(v)-coprecipitated ferrihydrite to hematite: implications for magnetic enhancement in soils and sediments

Guoqing Zhang, Yixuan Tang, Jinru Lin,* Jiaxing Xu, Zidan Yuan, Lingyun Chen, Fei Wu, Chengshuai Liu, Zongmin Zhu, Xiangyang Bi, Wei Zou, Zhiguo Cao, Kai Jiang, Yuanming Pan, Roman Chernikov, Yongfeng Jia and Shaofeng Wang*



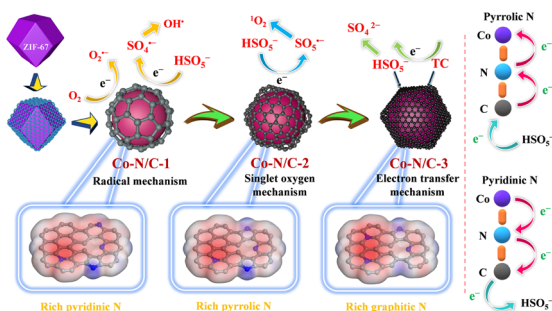
2000



Interfacial catalytic degradation mechanism of *n*-hexane over polyhedral Co₃O₄ nanocatalysts derived from topotactic condensation of ZIF-67

Yunlong Guo, Meicheng Wen, Guiying Li, Jiejing Kong, Shengnan Song, Qiuxia Liu and Taicheng An*

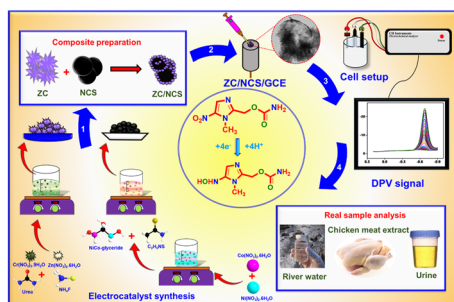
2010



Regulating the type of nitrogen to improve the performance of Co-N/C with a confinement effect in peroxymonosulfate activation for the effective degradation of organic pollutants

Yanqing Cong, Lingjie Ye, Qiang Zheng, Yudi Wang, Yifan Shao, Xuhua Ren and Shi-Wen Lv*

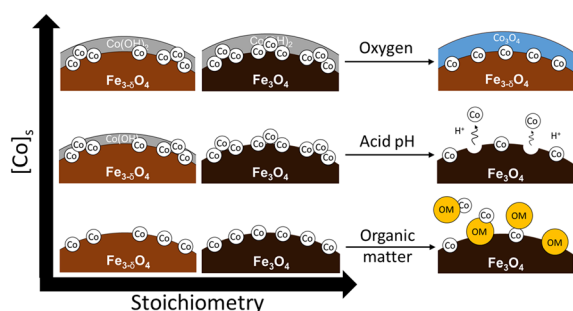
2021



3D architected zinc-chromium layered double hydroxide with nickel cobalt sulfide composite for the electrochemical detection of ronidazole

Thangavelu Sakthi Priya, Tse-Wei Chen,* Shen-Ming Chen,* Thangavelu Kokulnathan, Bih-Show Lou,* Riaz Ullah, Wedad A. Al-onazi and Mohamed S. Elshikh

2036



What are the effects of environmental factors on Co speciation at the magnetite surface?

Laura Fablet, Fadi Choueikani, Mathieu Pédrot and Rémi Marsac*

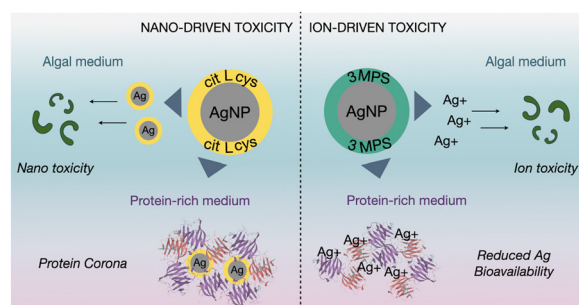


PAPERS

2049

Capping drives the behavior, dissolution and (eco) toxicity of silver nanoparticles towards microorganisms and mammalian cells

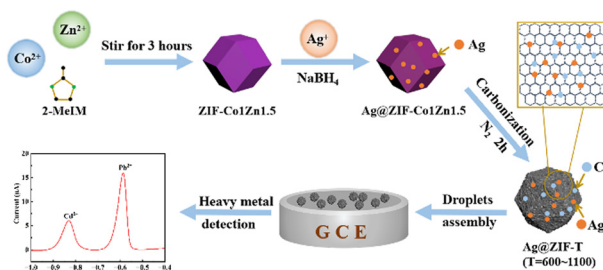
Arianna Bellingeri,* Nina Bono,* Iole Venditti, Federica Bertelà, Luca Burratti, Claudia Faleri, Giuseppe Protano, Eugenio Paccagnini, Pietro Lupetti, Gabriele Candiani and Ilaria Corsi



2061

Calcination-induced enhancement of Cd^{2+} and Pb^{2+} electrochemical detection capabilities of nano-ag-supported CoZn bi-metal ZIFs

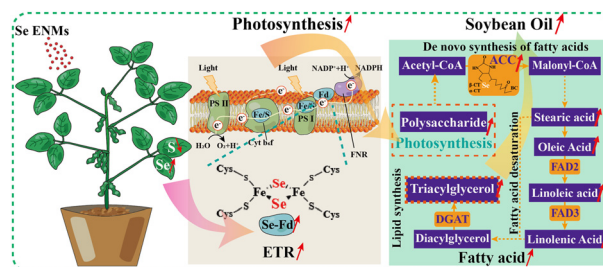
Siyan Wang, Yangcan Zhao, Chengkai Xia, Wantong Zhu, Ying Hou, Xiangpeng Zeng and Hongyan Xu*



2073

Selenium nanomaterials promoted ferredoxin and iron-sulfur protein synthesis and acetyl CoA carboxylase activity to improve the photosynthesis and fatty-acid synthesis in soybean

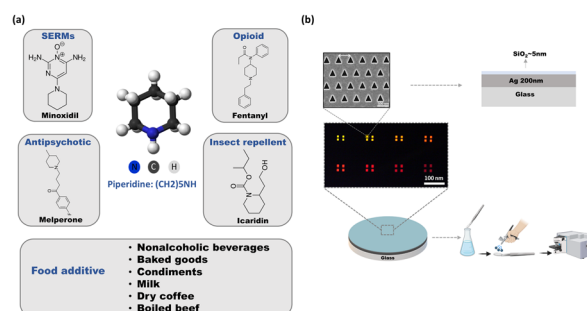
Lian Zhang, Xiaona Li, Le Yue, Xuesong Cao, Bingxu Cheng,* Chuanxi Wang and Zhenyu Wang



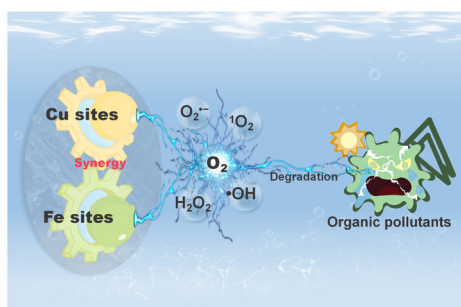
2083

Plasmonic-based Raman sensor for ultra-sensitive detection of pharmaceutical waste

Mohamed Hamode, Alon Krause, Maria Shehadeh, Bruria Schmerling, Tchiya Zar, Iddo Pinkas, David Zitoun and Adi Salomon*



2091



Critical role of dissolved oxygen and iron-copper synergy in dual-metal/char catalyst systems

Yang Luo, Hong Li, Hailan Yang, Zhiming Yang, Chuang Li, Shaoheng Liu, Qiang Chen, Weihua Xu, Wei Zhang and Xiaofei Tan*

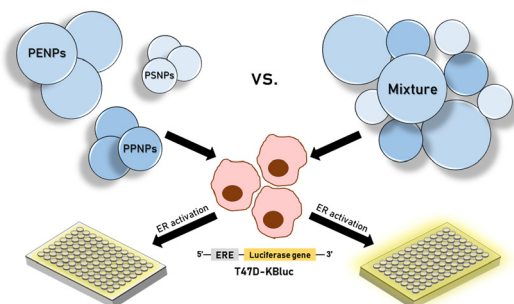
2103



Highly radiation-resistant Al-MOF selected based on the radiation stability rules of metal-organic frameworks with ultra-high thorium ion adsorption capacity

Xiaofan Ding, Zhanjun Zhang, Xinyan Li, Ke Ma, Tiantian Jin, Zhaoning Feng, Tian Lan,* Jing Zhao* and Songtao Xiao*

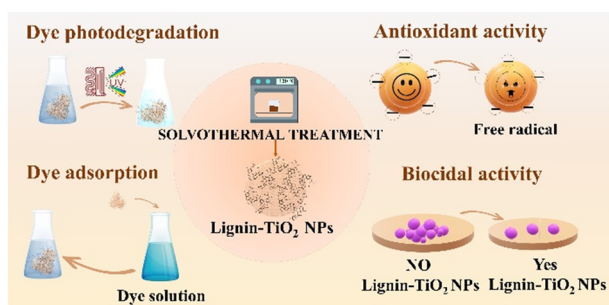
2112



Estrogenic activity of plastic nanoparticle mixtures under *in vitro* settings

Lucija Božičević, Korinna Altmann, Jana Hildebrandt, Xenia Knigge, Valerije Vrčec, Nikolina Peranić, Nikolina Kalčec and Ivana Vinković Vrčec*

2127



Biowaste valorization: multifunctional hybrid lignin/TiO₂ nanostructures for bacterial-biocide disinfection and dye removal

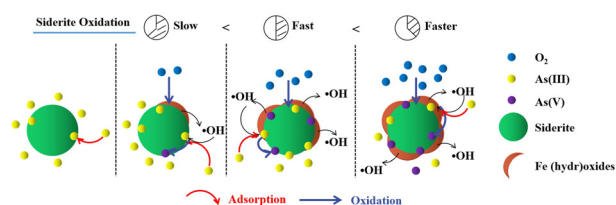
Marica Gallo, Virginia Venezia,* Marica Muscetta,* Rossella Grappa, Mariavittoria Verrillo, Gianluca Landi, Raffaele Marotta and Giuseppina Luciani



2145

Purification of As(III) through oxidation of siderite and As(III) by dissolved oxygen: behavior and mechanism

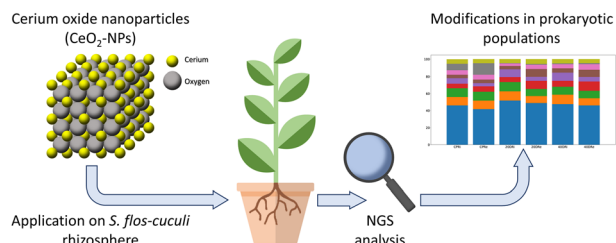
Wenting Yu, Zhipeng Gao and Huaming Guo*



2157

Impact of CeO₂ nanoparticles on the microbiota of the *S. flos-cuculi* L. (Caryophyllaceae) rhizosphere

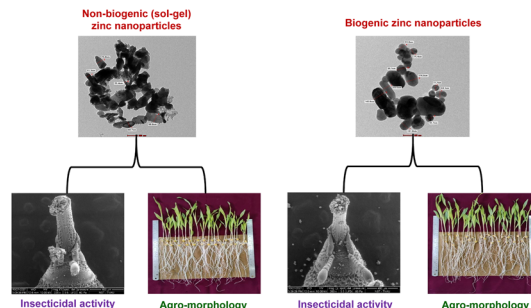
M. Civilini, A. Colautti, A. Brunello, N. Saccomanno, L. Marchiol, A. Foscari and L. Iacumin*



2173

Comparative analysis of the insecticidal activity against *Sitophilus oryzae* (L.) and agro-morphological characteristics of maize using non-biogenic and biogenic ZnO nanoparticles

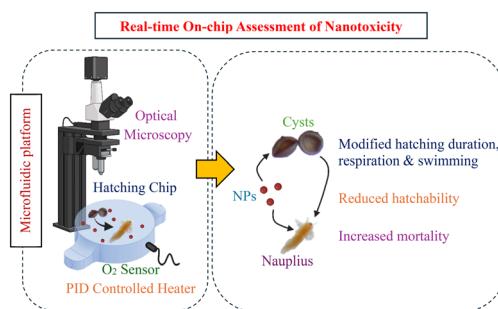
S. Aisvarya, M. Kalyanasundaram, M. Kannan,* P. Arunkumar, S. Preetha, K. Elango and K. Govindaraju



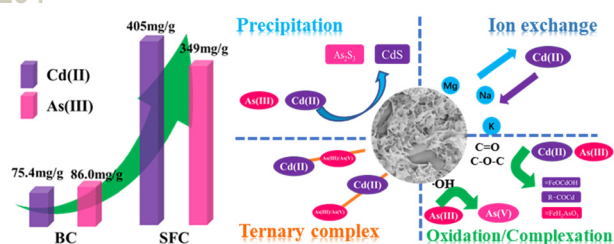
2188

Real-time assessment of the impacts of polystyrene and silver nanoparticles on the hatching process and early-stage development of *Artemia* using a microfluidic platform

Preyojon Dey, Terence M. Bradley and Alicia Boymelgreen*



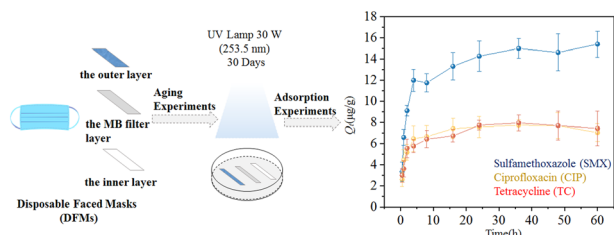
2204



High-efficiency removal of Cd(II) and As(III) from irrigation water using a S-Fe-C composite: performance and mechanisms

Zihao Liang, Yanpeng Liang, Hua Lin, Yuxi Lu, Huawei Li, Jie Zhang, Honghu Zeng and Gongning Chen*

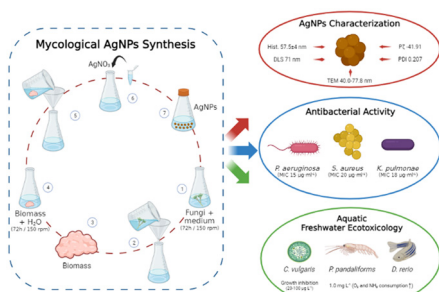
2217



Interaction of disposable face mask (nano) microplastics with antibiotics: performance and mechanisms

Ting Zhang, Xi Chen, Angrui Jiang, Jingfan Qi, Zhaoyang You* and Kinjal J. Shah*

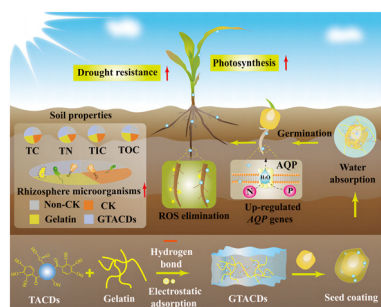
2229



Mycogenic silver nanoparticles from *Penicillium citrinum* IB-CLP11 – their antimicrobial activity and potential toxicity effects on freshwater organisms

Arthur Pérez Aguiar, Cristiane Angélica Ottoni, Claudia de Lima Ramos Aquaroli, Evelyn Caroline Vicente Mendes, Ana Lúzia de Souza Araújo, Marta Filipa Simões and Edison Barbieri*

2239



Carbon dot-embedded hydrogels promote maize germination and growth under drought stress

Yuying Ren, Xiaona Li, Bingxu Cheng, Le Yue, Xuesong Cao, Chuanxi Wang* and Zhenyu Wang

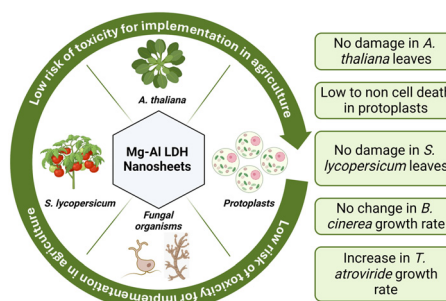


PAPERS

2249

Mg–Al LDH nanosheets as a nanotechnological tool in agriculture: an exploratory toxicity evaluation study

Rafael Salinas-Jiménez, Gloria Vera, Mariola Tobar, Jeimy Moscote, Giovana Acha, Ariel Herrera-Vásquez, Diego Rojas-Rivera, Elena A. Vidal, Andrea Miyasaka Almeida* and Manuel Ahumada*



2262

Mining, refining, and QSAR analysing the nanoinformatics in EPA NaKnowBase

Paul Harten, Henry Helgen, Wilson Melendez, Bradley Beach, William K. Boyes, Iason Sotiropoulos, Pantelis Karatzas, Haralambos Sarimveis and Holly M. Mortensen*



nanoQSAR

2275

Sulfur-doped porous carbon sheets embedded with rich iron sites for $^1\text{O}_2$ dominated peroxymonosulfate activation

Yadan Song, Yalong Liu, Yangju Li,* Haipeng Hu, Kexin Huang, Zhe Zhang, Zhongxian Li,* Wanning Cao, Kai Jiang and Dapeng Wu*

