

Environmental Science Nano

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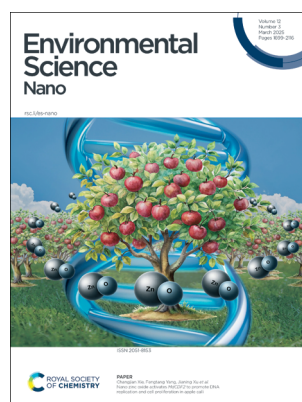
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IN THIS ISSUE

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Cover
See Martin Himly *et al.*, pp. 1710–1739.
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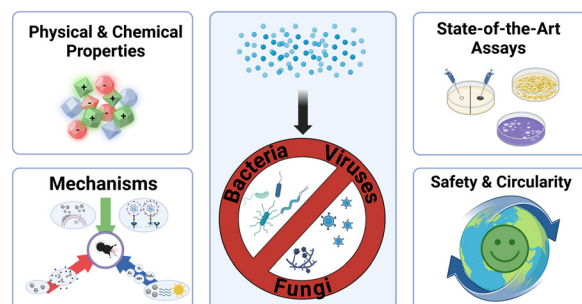
Inside cover
See Changjian Xie, Fengtang Yang, Jianing Xu *et al.*, pp. 1828–1839.
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TUTORIAL REVIEW

1710

Nano-scaled advanced materials for antimicrobial applications – mechanistic insight, functional performance measures, and potential towards sustainability and circularity

Benjamin Punz, Constantin Christ, Alrun Waldl, Su Li, Yingnan Liu, Litty Johnson, Vanessa Auer, Olavo Cardozo, Patricia M. A. Farias, Arnaldo C. D. S. Andrade, Andreas Stingl, Guocheng Wang, Yang Li and Martin Himly*

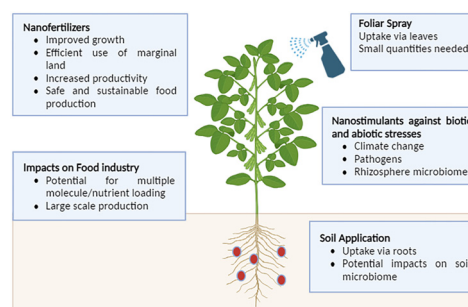


CRITICAL REVIEWS

1740

Nanostimulants and nanofertilizers for precision agriculture: transforming food production in the 21st century

Devesh Bekah, Yash Boyjoo, Rajnee Mistry Panpadoo, Jason C. White and Archana Bhaw-Luximon*



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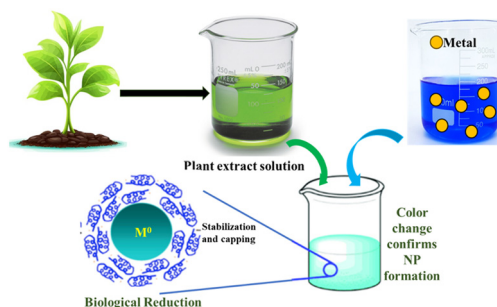


CRITICAL REVIEWS

1767

Biologically synthesized Fe⁰-based nanoparticles and their application trends as catalysts in the treatment of chlorinated organic compounds: a review

Hong Son Nguyen, Van Hoang Nguyen, Thanh Binh Nguyen, Trung Thien Luong and Ngoc Toan Vu*

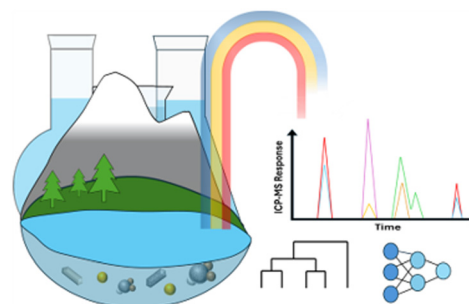


PERSPECTIVES

1789

Out of the lab and into the environment: the evolution of single particle ICP-MS over the past decade

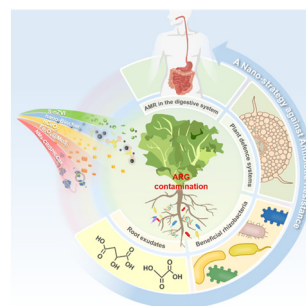
Aaron J. Goodman, Brianna F. Benner and Manuel D. Montaño*



1801

Tailoring nanomaterials towards global One Health: a promising nano-strategy against antibiotic resistance

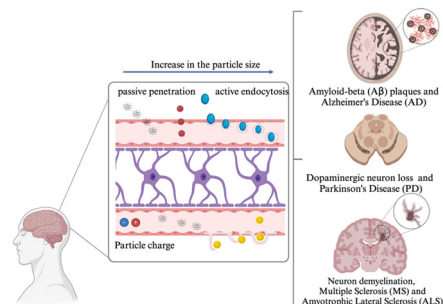
Feiran Chen, Shuhan Zhang, Xi Wang and Zhenyu Wang*



1809

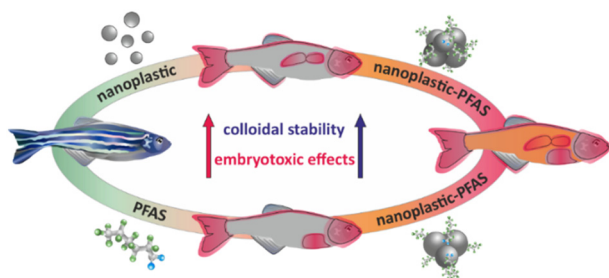
A perspective on the potential impact of microplastics and nanoplastics on the human central nervous system

Kimia Moiniafshari, Alessandra Zanut, Andrea Tapparo, Paolo Pastore, Sara Bogialli and Fazel Abdolapur Monikh*



COMMUNICATION

1821

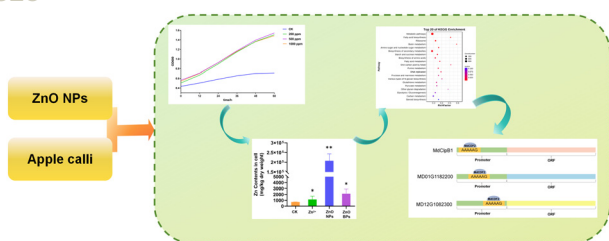


Correlation between the stability and toxicity of PFAS–nanoplastic colloids

Katalin Viktória Bere, Zolt Csenki-Bakos, Edit Kaszab, Béla Urbányi, István Szabó* and Istvan Szilagyi*

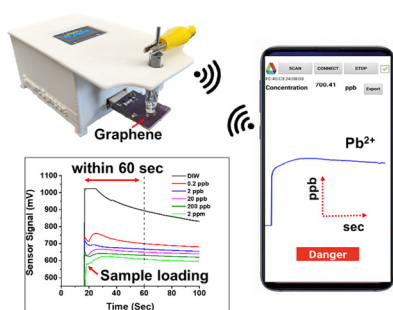
PAPERS

1828

Nano zinc oxide activates *MdCDF2* to promote DNA replication and cell proliferation in apple calli

Yuxiao Yi, Xiaowei Li, Qing Wang, Tongtong Guo, Changjian Xie,* Fengtang Yang* and Jianing Xu*

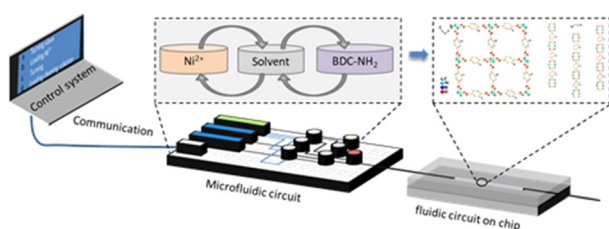
1840



A portable and reusable sensor system based on graphene for real-time and sensitive detection of lead ions in water

Byunghoon Ryu, Wen Zhuang, Hyun-June Jang, Zhenwei Gao, Yuqin Wang and Junhong Chen*

1849



Programming layer-by-layer liquid phase epitaxy in microfluidics for realizing two-dimensional metal–organic framework sensor arrays

Huijie Jiang, Bo Staeglich, Joachim Knoch, Sandeep Kumar, Neeraj Dilbaghi, Akash Deep, Sven Ingebrandt and Vivek Pachauri*

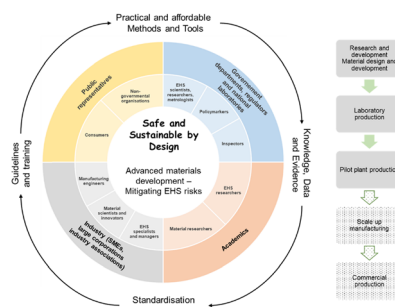


PAPERS

1858

Safe and sustainable development of advanced materials: UK National Knowledge Sharing Network Workshops

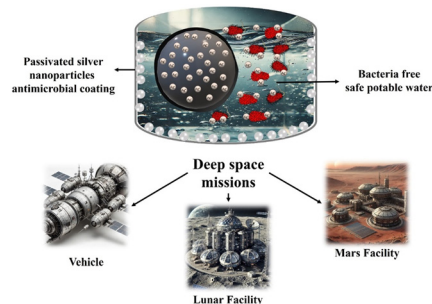
Charles A. Clifford,* Delphine Bard, Fernando A. Castro, Gareth S. Evans, Mark Gee, Samantha Hall, Stephanie Kitchen, Denis Koltsov, Alex Price, Rachel Smith and Fatima Nasser



1872

Coating complex metallic surfaces with passivated silver nanoparticles for long-term biofilm control

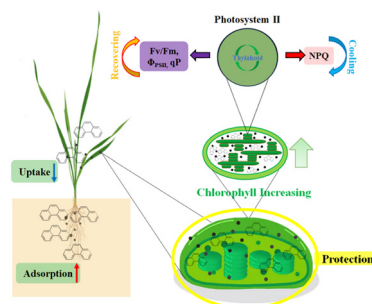
Ali Ansari, Afsana Munni, Dianne Carrillo, Matthew Pedersen, Rafiqul Islam and François Perreault*



1881

The role of nano-biochar reduces the impact of phenanthrene on wheat photosynthesis

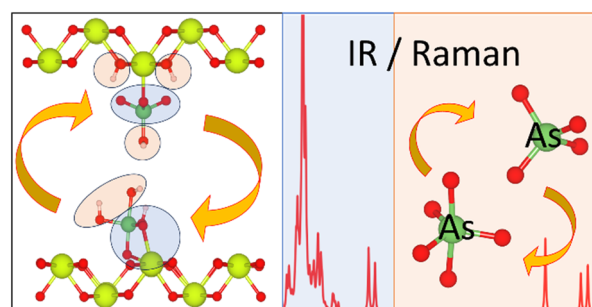
Menghan Cui, Jin Zhang, Chenghao Huang, Shuangyuan Xu, Božena Czech, Jianggang Han, Yu Shen* and Xinhua Zhan*



1896

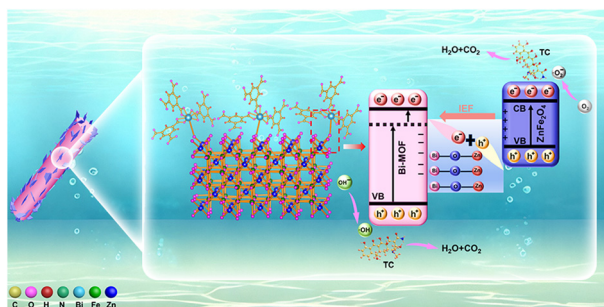
Sorption of arsenate on cerium oxide: a simulated infrared and Raman spectroscopic identification

Khoa Minh Ta, Deyontae O. Wisdom, Lisa J. Gillie, David J. Cooke, Runliang Zhu, Mário A. Gonçalves, Stephen C. Parker and Marco Molinari*



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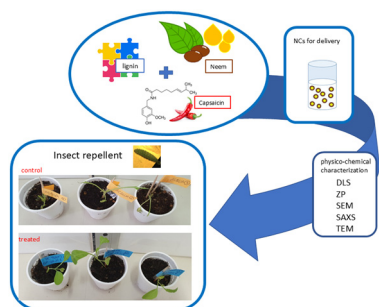
1908



Interfacial Bi–O–Zn bonding induces faster charge transfer in S-scheme Bi-MOF/ZnFe₂O₄ heterojunction for enhanced photocatalytic tetracycline elimination

Hui Li, Zhu Zhu, Kai Yang, Kangqiang Lu, Xirong Chen, Weiya Huang* and Zhaoqing Liu

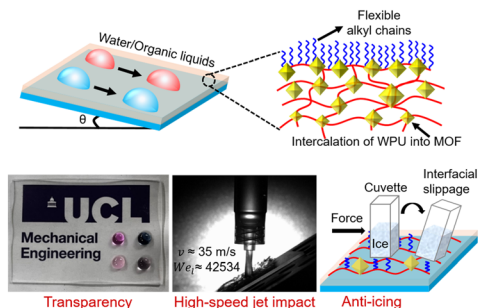
1922



Efficiency of lignin nanocapsules for delivering neem oil and capsaicin against pest insects: insights into the system *Eruca sativa* – *Plutella xylostella*

Sara Falsini,* Tommaso Nieri, Alessio Papini, Maria Cristina Salvatici, Ali Abou-Hassan, Cristina Gonnelli and Sandra Ristori*

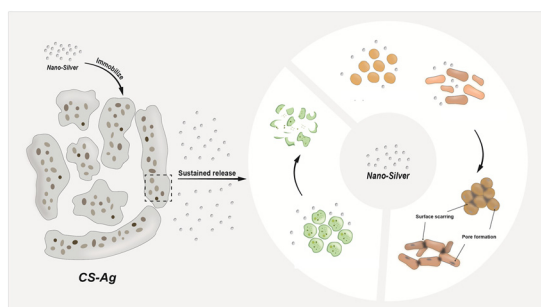
1930



Intercalated MOF nanocomposites: robust, fluorine-free and waterborne amphiphobic coatings

Priya Mandal, Vikramjeet Singh, Jianhui Zhang and Manish K. Tiwari*

1942



Enhanced antibacterial and algae inhibition performance by coral sand-supported nano-Ag composites

Sufeng Wang, Fengjing Lv, Wen Zhang,* Jingshan Li, Mingyang Lin and Zhengyi Tao

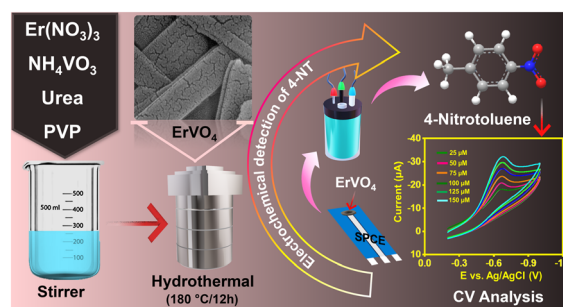


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1956

Facile synthesis of erbium vanadate nanoribbons for electrochemical detection of 4-nitrotoluene

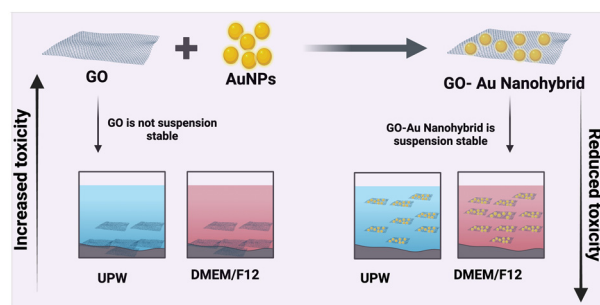
Aravind Radha and Sea-Fue Wang*



1965

Designing safer nanohybrids: stability and ecotoxicological assessment of graphene oxide–gold nanoparticle hybrids in embryonic zebrafish

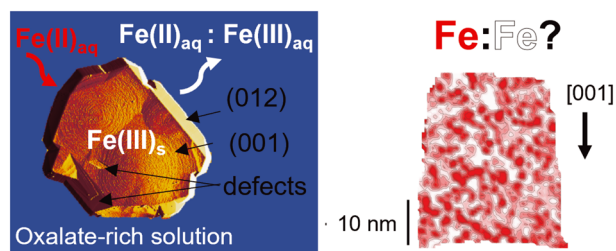
Bashiru Ibrahim,* Taiwo Hassan Akere, Pankti Dhumal, Eugenia Valsami-Jones and Swaroop Chakraborty*



1979

Facet-dependent growth and dissolution of hematite resulting from autocatalytic interactions with Fe(II) and oxalic acid

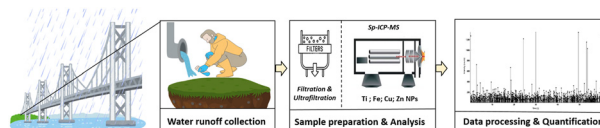
Sandra D. Taylor,* John B. Cliff, Thomas W. Wietsma and Kevin M. Rosso*



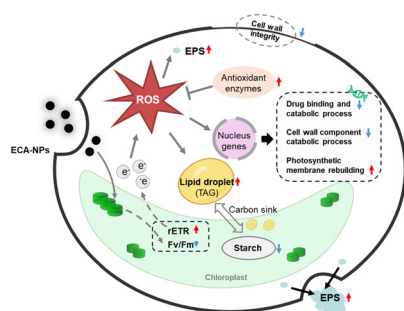
1993

Detection and quantification of nanoparticles in runoff from a highly trafficked urban motorway

Malak Dia, Pierre-Emmanuel Peyneau,* Denis Courtier-Murias and Béatrice Bechet



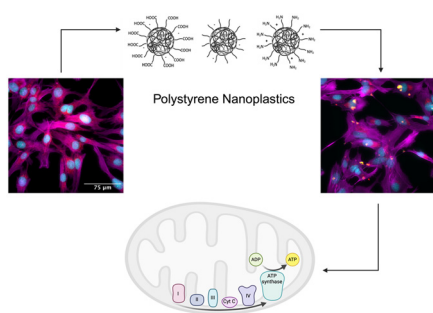
2008



Physiological and transcriptomic responses of *Chlorella vulgaris* to novel antibacterial nanoparticles of ethyl cyanoacrylate polymer

Di Zhang, Keqing Liu, Chengcheng Feng, Xianmin Wang, Ayat J. S. Al-Azab, Han Lu, Haiyan Ma, Ying Tang, Li Xu, Takeshi Ohama and Fantao Kong*

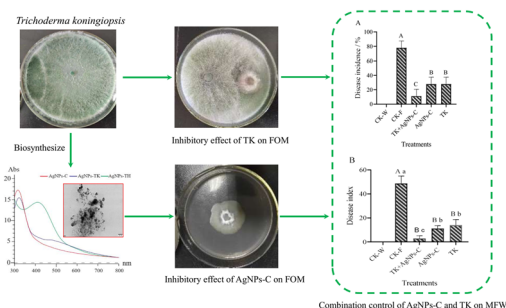
2021



Phenotypic profiling reveals polystyrene nanoplastics elicit sublethal and lethal effects on cellular morphology in rainbow trout gill epithelial cells

Lissett G. Diaz and Rebecca Klaper*

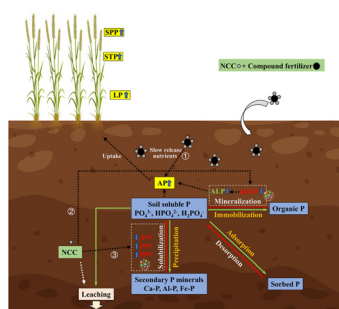
2034



Combining *Trichoderma* sp. and biogenic AgNPs from *Trichoderma* strains as a synergistic control complex to improve the growth of muskmelon and suppress *Fusarium oxysporum* f. sp. melonis

Tong Li, Ran Tao, Zhen Zhong, Xian Liu* and Zenggui Gao*

2050



Nano calcium carbonate promotes phosphorus uptake in wheat by modulating the rate of phosphorus release and facilitating soil bacterial-mediated phosphorus morphological transformation processes

Yu Gao, Shuang Chen, Cexun Ji, Kui Chao, Xiulin Wang and Yan Shi*

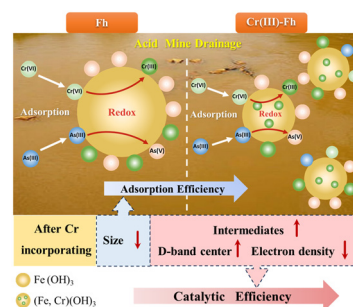


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2064

Cr(III)-incorporated Fe(III) hydroxides for enhanced redox conversion of As(III) and Cr(VI) in acidic solution

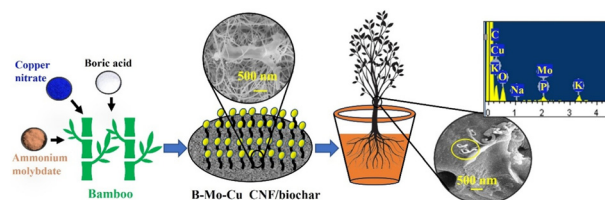
Juanjuan Liu, Xubo Gao,* Chong Dai, Suona Zhang, Shuqiong Kong, Lin Wang and Yandi Hu*



2076

A micro-nano formulation of multi-micronutrient- and carbon nanofiber-modified biochar for enhanced plant growth

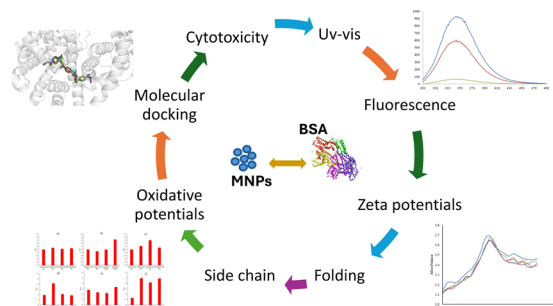
Abhishek Gupta, Rahul Gupta and Nishith Verma*



2091

Elucidating the leaching effect of micro-/nano-plastics on the binding, structural, and oxidative characteristics of bovine serum albumin and its impact on cytotoxicity and oxidative stress in the human lung cancer cell line A549

Asli Baysal, Hasan Saygin,* Ahu Soyocak, Mehmet Kahraman, Emre Apaydin and Pemra Ozbek



CORRECTION

2114

Correction: Emerging investigator series: quantitative insights into the relationship between the concentrations and SERS intensities of neonicotinoids in water

Shengdong Liu, James Lazarcik and Haoran Wei*

