

Environmental Science: Advances

rsc.li/esadvances

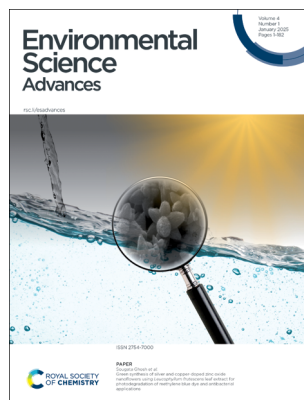
The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2754-7000 CODEN ESANEB 4(1) 1–182 (2025)



Cover
See Matthew S. Savoca *et al.*, pp. 10–32. Image reproduced by permission of Victoria Gonzalez Carman from *Environ. Sci.: Adv.*, 2025, 4, 10.



Inside cover
See Sougata Ghosh *et al.*, pp. 97–114. Image reproduced by permission of Sougata Ghosh from *Environ. Sci.: Adv.*, 2025, 4, 97.

EDITORIAL

8

Environmental Science: Advances – four years of diverse and holistic visions

Kevin C. Jones, Célia Manaia and Zongwei Cai

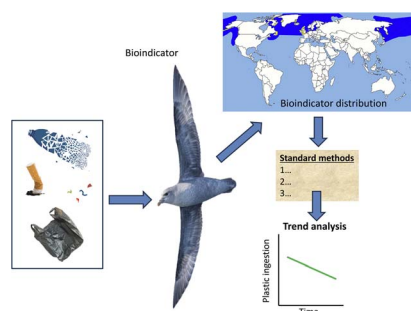


CRITICAL REVIEWS

10

Monitoring plastic pollution using bioindicators: a global review and recommendations for marine environments

M. S. Savoca,* N. A. Abreo, A. H. Arias, L. Baes, M. Bains, E. Bergami, S. Brander, M. Canals, C. A. Choy, I. Corsi, B. De Witte, C. Domit, S. Dudas, E. M. Duncan, C. E. Fernández, M. C. Fossi, O. Garcés-Ordóñez, B. J. Godley, D. González-Paredes, V. G. Carman, B. M. Hamilton, B. D. Hardesty, S. H. Hong, S. Kahane-Rappoport, L. M. Kashiwabara, M. B. Lacerda, G. Luna-Jorquera, C. Manno, S. E. Nelms, C. Pantí, D. J. Pérez-Venegas, C. K. Pham, J. F. Provencher, S. Purca, H. Rashid, Y. Rodríguez, C. Sparks, C. Sun, M. Thiel, C. Tsangaris and R. G. Santos



**GOLD
OPEN
ACCESS**

EES Solar

**Exceptional research on solar
energy and photovoltaics**

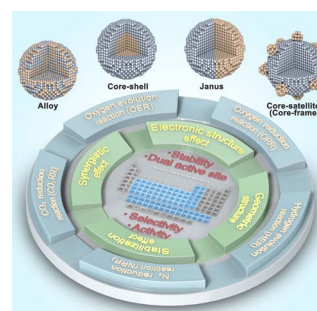
Part of the EES family

**Join
in** | Publish with us
rsc.li/EESolar

33

Bimetallic nanoparticles: advances in fundamental investigations and catalytic applications

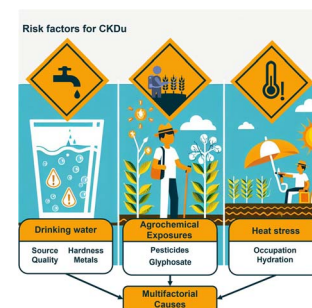
Hongxia Lin, Yuxi Liu,* Jiguang Deng, Lin Jing, Zhiwei Wang, Lu Wei, Zhen Wei, Zhiquan Hou, Jinxiong Tao and Hongxing Dai*



57

A critical review of a hidden epidemic: examining the occupational and environmental risk factors of chronic kidney disease of unknown etiology (CKDu)

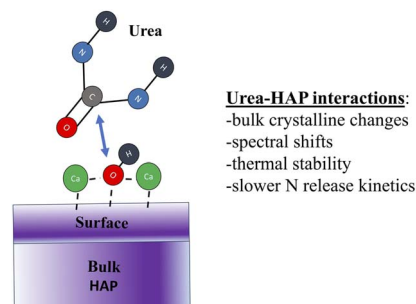
Madeleine Bradley, Danielle Land, Darrin A. Thompson and David M. Cwiertny*



77

Hydroxyapatite/urea hybrid materials: what is the basis for the enhanced nutrient efficiency?

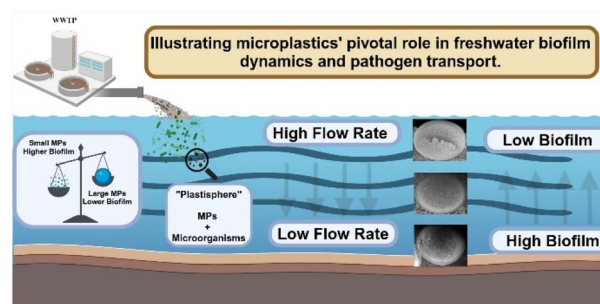
Mohamed Ammar, Sherif Ashraf and Jonas Baltrusaitis*



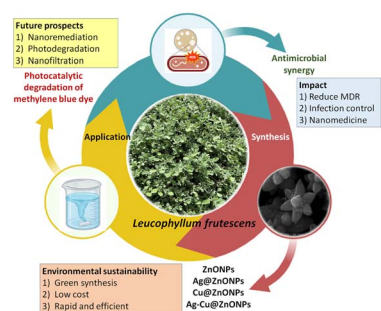
90

Wastewater-induced microplastic biofouling in freshwater: role of particle size and flow velocity

Gaurav Bhardwaj, Malihe Mohammadiun, Carlos Saul Osorio Gonzalez, Satinder Kaur Brar and Shooka Karimpour*



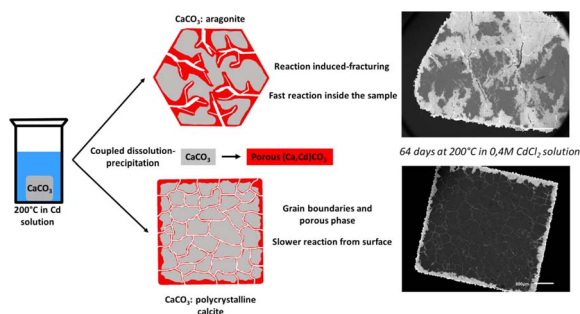
97



Green synthesis of silver and copper-doped zinc oxide nanoflowers using *Leucophyllum frutescens* leaf extract for photodegradation of methylene blue dye and antibacterial applications

Maitri Nandasana, Tanawat Imboon, Rashbihari Layek, Arindam Dey, Pranav Pandya, Vijay Singh Parihar, Madhumita S. Tawre, Santosh Sutar, Pathik Kumbhakar, Karishma Pardesi, Sirikanjana Thongmee and Sougata Ghosh*

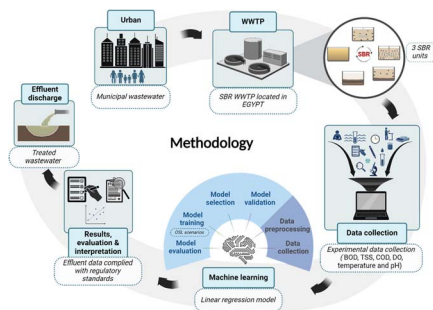
115



Porosity and fluid pathway development during cadmium sequestration by calcium carbonate replacement

Maude Julia,* Christine V. Putnis, Oliver Plümer and François Renard

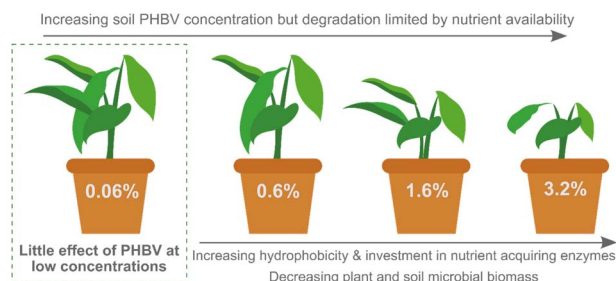
125



Machine learning application in municipal wastewater treatment to enhance the performance of a sequencing batch reactor wastewater treatment plant

Hagar H. Hassan*

133



Microbial degradation of bioplastic (PHBV) is limited by nutrient availability at high microplastic loadings

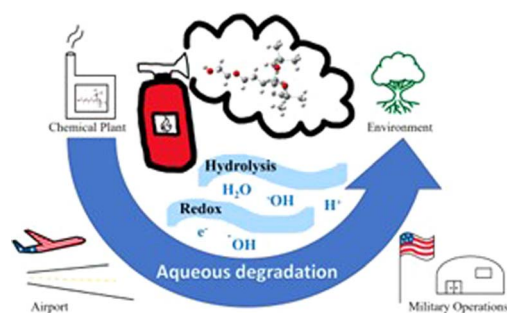
Michaela K. Reay,* Martine Graf, Lucy M. Greenfield, Rafael Bargiela, Charles Onyije, Charlotte E. M. Lloyd, Ian D. Bull, Richard P. Evershed, Peter N. Golyshin, David R. Chadwick and Davey L. Jones



147

Aqueous solution degradation pathways of trimethylsiloxane surfactants

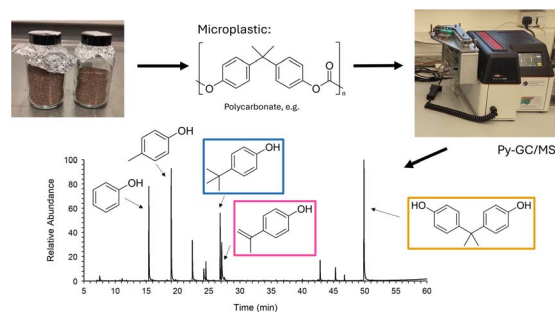
Maleigh Mifkovic, Brian D. Etz, Manoj K. Shukla* and Shubham Vyas*



159

Quantification of microplastic targets in environmental matrices using pyrolysis-gas chromatography-mass spectrometry

Rebecca H. Peel, Charlotte E. M. Lloyd, Stephen J. Roberts, B. D. A. Naafs and Ian D. Bull*



172

Atmospheric mercury concentration variations at Syowa Station, Lützow-Holm Bay, East Antarctica and contributing factors

Koyomi Nakazawa,* Osamu Nagafuchi,* Akihiro Mitsui, Tomoaki Watanabe, Naoko Hishida, Megumu Tsujimoto and Satoshi Imura

