

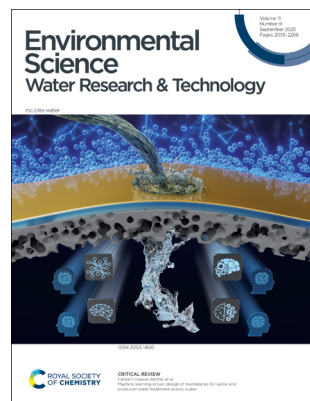
# Environmental Science Water Research & Technology

rsc.li/es-water

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 2053-1400 CODEN ESWRAR 11(9) 2055-2266 (2025)



### Cover

See Faheem Hassan Akhtar *et al.*, pp. 2080–2099.

Image reproduced by permission of Faheem Hassan Akhtar and Kim Choon Ng from *Environ. Sci.: Water Res. Technol.*, 2025, 11, 2080.

## EDITORIAL

2062

### Editorial Perspectives: sanitation developments since 'Pitfalls and progress'

Michael R. Templeton

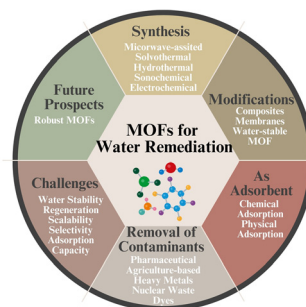


## PERSPECTIVE

2064

### Metal organic framework-based materials for water remediation: recent progress, challenges, and future perspectives

Abdulaziz Al-Anazi, Muhammad Tuoqeer Anwar,\*  
Naveed Husnain, Muhammad Rehman Asghar,  
Saad Ahmed, Awais Ihsan, Muhammad Salman Mustafa,  
Ghulam Abbas Ashraf and Tahir Rasheed\*





# Advance your career in science

with professional recognition that showcases your **experience, expertise and dedication**

## Stand out from the crowd

Prove your commitment to attaining excellence in your field

## Gain the recognition you deserve

Achieve a professional qualification that inspires confidence and trust

## Unlock your career potential

Apply for our professional registers (RSci, RSciTech) or chartered status (CChem, CSci, CEnv)

## Apply now

[rsc.li/professional-development](https://rsc.li/professional-development)

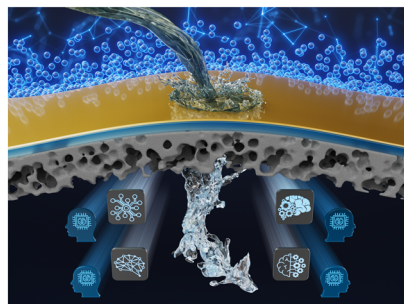


## CRITICAL REVIEWS

2080

**Machine learning-driven design of membranes for saline and produced water treatment across scales**

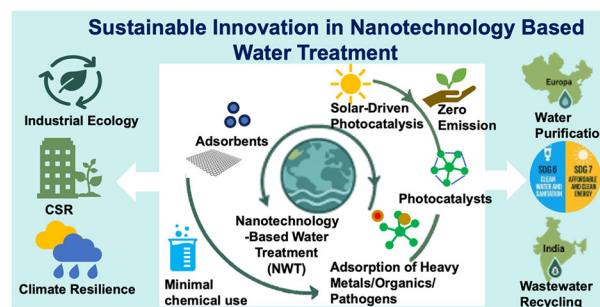
Uzair Ahmad, Ahmed Abdala, Kim Choon Ng and Faheem Hassan Akhtar\*



2100

**Sustainable innovation in nanotechnology-based water treatment: aligning climate change adaptation with industrial ecology and CSR goals**

Sanduni Dabare, Sisitha Rajapaksha\* and Imalka Munaweera\*

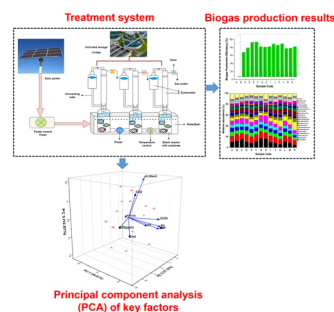


## PAPERS

2125

**Optimizing waste-to-energy conversion: the impact of catalytic pretreatment on thermophilic anaerobic digestion of sewage sludge**

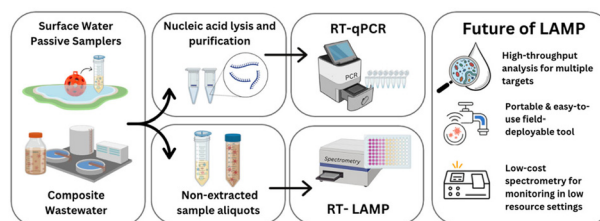
Mansuur Husein, Liang Cheng,\* Francis Kwaku Attiogbe, Abdallah Abdelfattah, Hussein Sulemana, Philip Allan Barnes and Hany S. El-Mesery



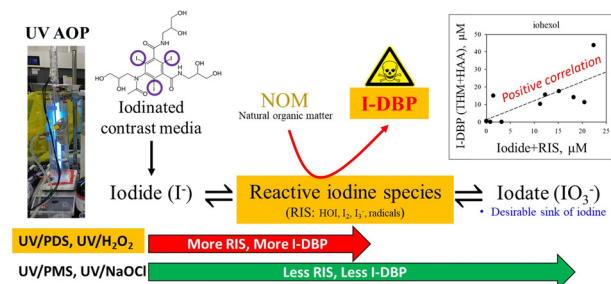
2141

**Isothermal amplification as a water safety tool: rapid detection of viruses in surface water and wastewater**

Emalie K. Hayes,\* Madison T. Gouthro and Graham A. Gagnon\*



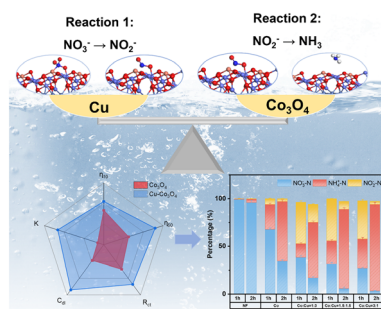
2152



### Formation dynamics of inorganic iodine species during UV-based advanced oxidation of iopamidol and iohexol and their correlation with iodinated disinfection by-product yields

Hojoong Ji, Jaehyeong Park, Seonyoung An, Seo-Yeong Choi and Jong Kwon Choe\*

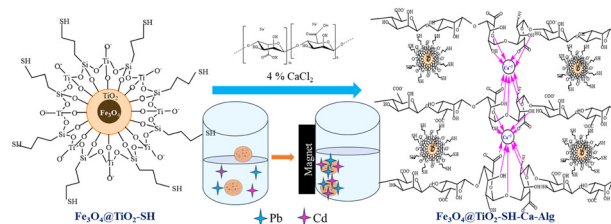
2161



### Fabrication of dual-sited Cu doped $Co_3O_4$ on nickel foam ( $Cu-Co_3O_4/NF$ ) for segmentally efficient electrochemical nitrate reduction under low conductivity

Xueqi Tao, Shuaishuai Man, Qun Yan,\* Athanasia Tekerlekopoulou, Dimitris V. Vayenas and Bin Huang

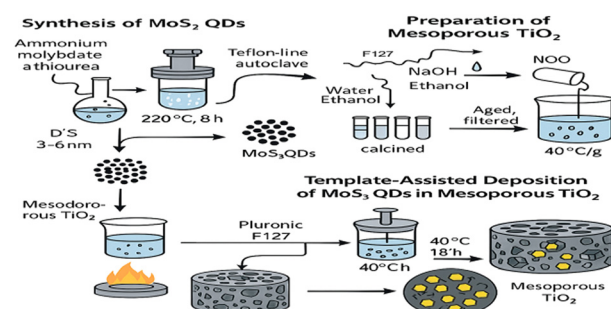
2174



### An innovative approach towards the selective recovery of $Pb(II)$ and $Cd(II)$ : thiol-functionalized $TiO_2$ -based magnetic core-shell nanoparticle-loaded hydrogel

Purbali Das, Hirakendu Basu,\* Brindaban Modak, Ranita Basu, Sudeshna Saha, Shweta Singh and Chandra Nath Patra

2192



### Nanoconfined $MoS_2$ quantum dots in mesoporous $TiO_2$ : a high-performance platform for electrochemical microplastic sensing

Rima Heider Al Omari, Shelesh Krishna Saraswat, Abhinav Kumar, Subbulakshmi Ganesan, Shaker Mohammed, Aashna Sinha, Hadi Noorizadeh\* and Mosstafa Kazemi



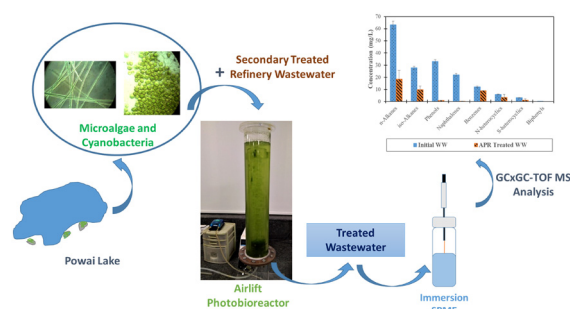


## PAPERS

2211

# Assessment of reactor hydrodynamics and treatment effectiveness of secondary treated refinery wastewater in an airlift photobioreactor

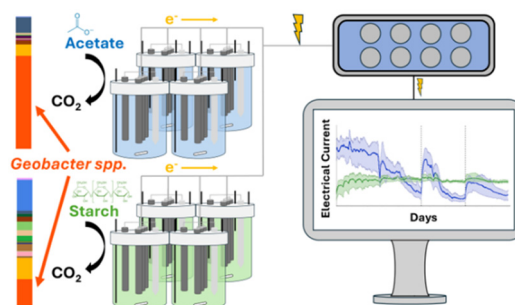
Prashant Sinha and Suparna Mukherji\*



2227

# Investigating substrate impact on electroactive biofilm performance in low-cost, single-chamber microbial electrolysis cells for biosensing

Connor E. Saucedo and Adam L. Smith\*



2240

# Evaluation of point-of-use drinking water treatment performance for typical per- and polyfluoroalkyl substances in tap water

Yangyuan Ji, Tao Yuan,\* Zhenjin Li, Yanan Xing, Yan Cao, Xiaoli Zhao, Xinyue Ma, Zhemin Shen, Shuangqing Hu and Genxiang Shen\*



Point-of-use Drinking Water Treatment		Limitation on PFAS
Direct Consumption		✗
Boiling		✗
Filter (GAC and Ion Exchange Resins)		✗
Membrane filtration	UF	✗
	RO	✓
Bottled water		✓

2248

# Adsorbent modified constructed wetlands for advanced removal of bulk organics and heavy metals from municipal wastewater effluent

Luca M. Ofiera, Thomas Wintgens and Christian Kazner\*

