

# 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 10(5) 997-1296 (2024)



### Cover

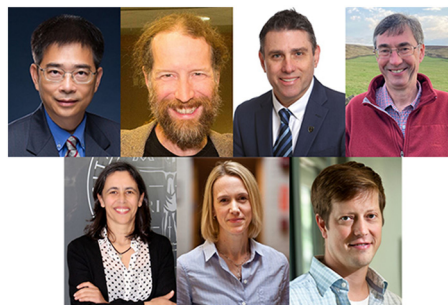
See Manuela Melucci *et al.*,  
pp. 1097–1107.  
Image reproduced by  
permission of Manuela Melucci  
(CNR), Letizia Bocchi  
(Medica SpA) from *Environ. Sci.:  
Water Res. Technol.*,  
2024, 10, 1097.

## EDITORIAL

1006

### 2023 Outstanding Papers published in the *Environmental Science* journals of the Royal Society of Chemistry

Zongwei Cai, Neil Donahue, Graham Gagnon,  
Kevin C. Jones, Céla Manaia, Elsie Sunderland  
and Peter J. Vikesland

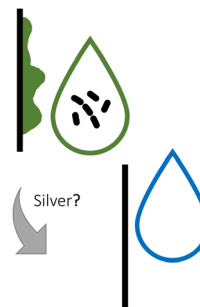


## PERSPECTIVE

1009

### Moving beyond silver in point-of-use drinking water pathogen control

Daniel P. Huffman, Sarah Pitell, Paige Moncure,  
Janet Stout, Jill E. Millstone, Sarah-Jane Haig\*  
and Leanne M. Gilbertson\*



# RSC Sustainability

GOLD  
OPEN  
ACCESS

Dedicated to sustainable  
chemistry and new solutions

For an open, green and inclusive future

[rsc.li/RSCSus](https://rsc.li/RSCSus)

Fundamental questions  
Elemental answers

Registered charity number: 207890

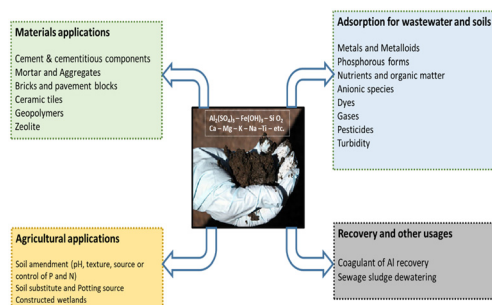


## CRITICAL REVIEWS

1019

## Re-utilization of drinking water treatment residuals (DWTR): a review focused on the adsorption of inorganic and organic contaminants in wastewater and soil

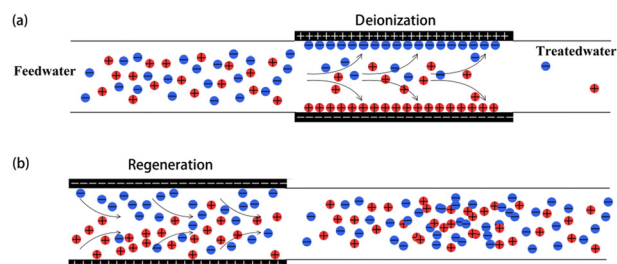
Nelson Belzile\* and Yu-Wei Chen



1034

## Enhancing capacitive deionization for water desalination: the role of activated carbon in contaminant removal

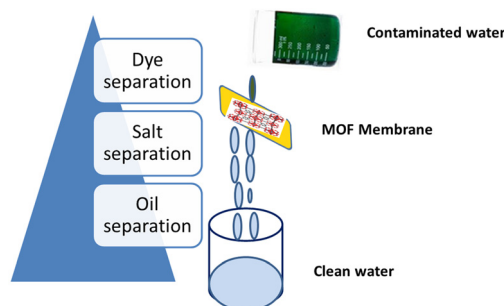
Xuan Wang, Shuya Shan, Yaoli Zhang,\* Sheldon Q. Shi\* and Changlei Xia



1061

## Recent progress in 2D and 3D metal-organic framework-based membranes for water sustainability

Talib Hussain Banglani, Imamdin Chandio, Akbar Ali, Ayaz Ali Memon,\* Jun Yang,\* Mohsin Kazi and Khalid Hussain Thebo\*



## PAPERS

1097

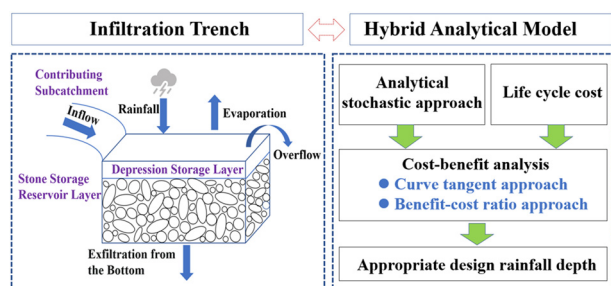
## Upcycling of plastic membrane industrial scraps and reuse as sorbent for emerging contaminants in water

Sara Khaliha, Francesca Tunioli, Luca Foti, Antonio Bianchi, Alessandro Kovtun, Tainah Dorina Marforio, Massimo Zambianchi, Cristian Bettini, Elena Briñas, Ester Vázquez, Letizia Bocchi, Vincenzo Palermo, Matteo Calvaresi, Maria Luisa Navacchia and Manuela Melucci\*





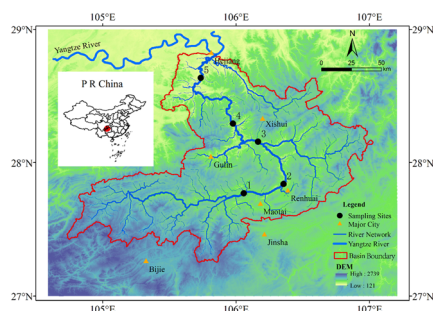
1108



### Towards the cost-effective design of stormwater infiltration trenches: a hybrid model integrating cost-benefit analysis and an analytical stochastic approach

Jun Wang,\* Yijiao Diao, Shengle Cao,\* Jiachang Wang, Jingjing Jia and Yiping Guo

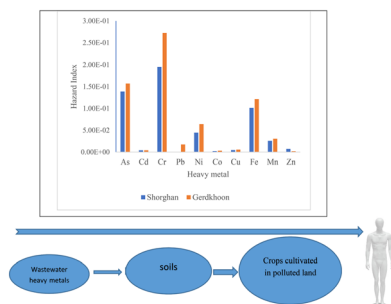
1122



### Geochemistry, health risk assessment and statistical source identification of dissolved trace elements in surface water of the Chishui River, China

Xiwei Song, Liqiang Chao, Xutao Jiang, Kejia Liu and Xunchi Pu\*

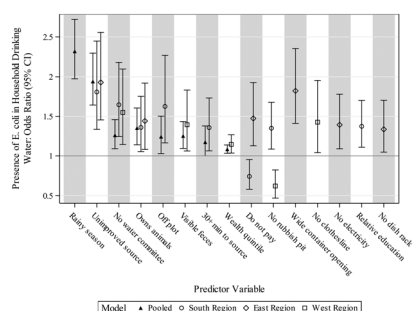
1135



### Risk assessment of heavy metals in soil and simultaneous monitoring in wheat irrigated with groundwater and treated wastewater and its long-term effects for residents of adjacent regions

Aboolfazl Azhdarpoor,\* Zohre Moeini, Farnaz Ranjbar, Mohammadreza Samaei and Hasan Hashemi

1147



### Identifying predictors of *E. coli* in rural household water in sub-Saharan Africa using elimination regression

Donald Fejfar, Wren Tracy, Emma Kelly, Michelle Moffa, Robert Bain, Jamie Bartram, Darcy Anderson and Ryan Cronk\*

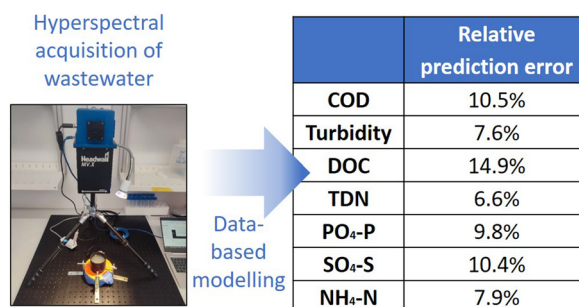


## PAPERS

1160

## Towards non-contact pollution monitoring in sewers with hyperspectral imaging

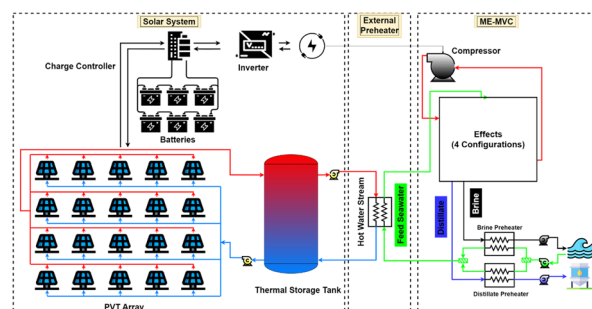
P. Lechevallier,\* K. Villez, C. Felsheim and J. Rieckermann



1171

## Analysis of a PVT-powered multi-effect mechanical vapor compression desalination system at different feed configurations: energy, exergy, and economic aspects

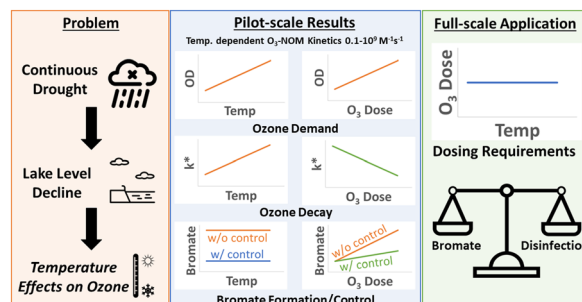
Mahmoud Sheta and Hamdy Hassan\*



1195

## Quantifying drought-driven temperature impacts on ozone disinfection credit and bromate control

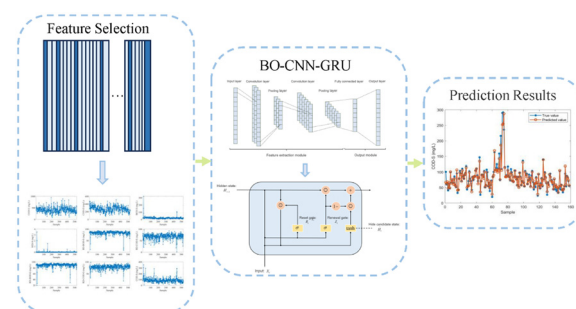
Bilal Abada, Ariel J. Atkinson and Eric C. Wert\*



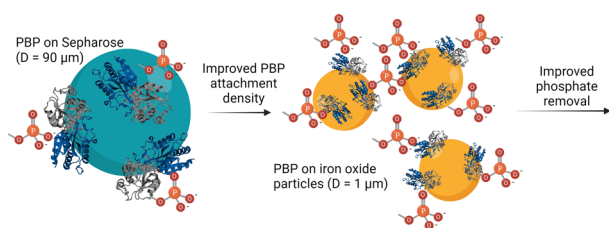
1208

## Optimized deep learning models for effluent prediction in wastewater treatment processes

Canyun Yang, Zhuoyue Guo, Yun Geng, Fengshan Zhang, Wenguang Wei and Hongbin Liu\*



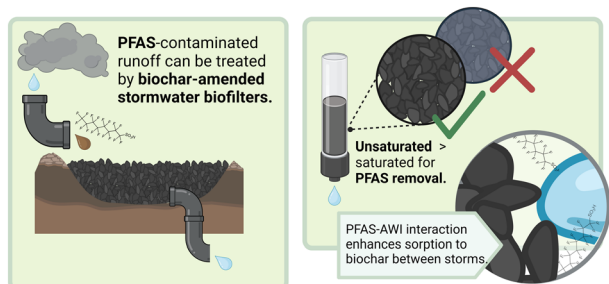
1219



### Phosphate-binding protein-loaded iron oxide particles: adsorption performance for phosphorus removal and recovery from water

Faten B. Hussein, Andrew H. Cannon, Justin M. Hutchison, Christopher B. Gorman, Yaroslava G. Yingling and Brooke K. Mayer\*

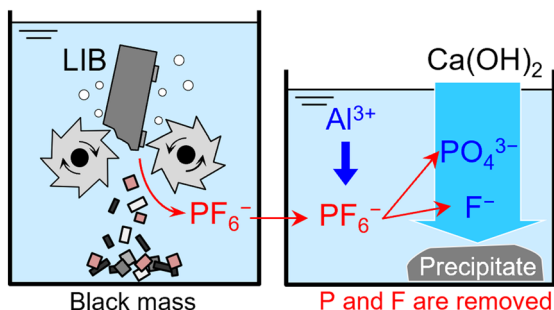
1233



### Controlling saturation to improve per- and polyfluoroalkyl substance (PFAS) removal in biochar-amended stormwater bioretention systems

Kathleen Mills Hawkins, James Conrad Pritchard, Scott Struck, Yeo-Myoung Cho, Richard G. Luthy and Christopher P. Higgins\*

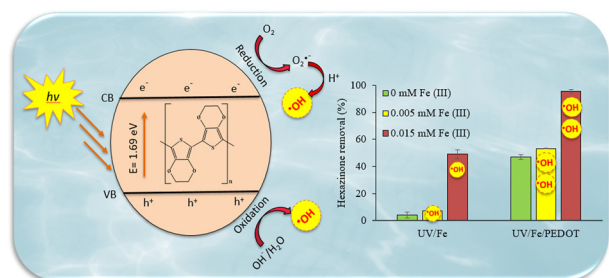
1245



### Removal of phosphorus and fluorine from wastewater containing $PF_6^-$ via accelerated decomposition by $Al^{3+}$ and chemical precipitation for hydrometallurgical recycling of lithium-ion batteries

Takuto Miyashita,\* Kouji Yasuda\* and Tetsuya Uda\*

1256



### Mechanistic investigation of the photocatalytic activity of PEDOT for aqueous contaminant removal: the role of iron and hydroxyl radicals

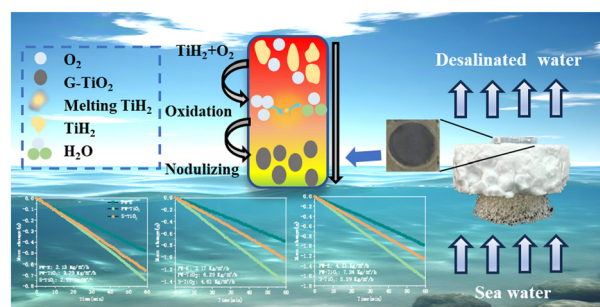
Tahereh Jasemizad, Jenny Malmström and Lokesh P. Padhye\*



1271

## Thermal plasma-synthesized gray-black TiO<sub>2</sub> with abundant oxygen vacancies for high-efficiency solar desalination

Fei Li, Chang Liu, Yuanjiang Dong, Huacheng Jin, Baoqiang Li, Fei Ding and Fangli Yuan\*



1280

## Adsorption mechanisms of short-chain and ultrashort-chain PFAS on anion exchange resins and activated carbon

Swadhina P. Lenka, Melanie Kah, Jack L.-Y. Chen, Bryan Andres Tiban-Anrango and Lokesh P. Padhye\*

