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 9(10) 2419-2762 (2023)



Cover See Jie Hou, Xugang He et al., pp. 2472-2486. Image reproduced by permission of Jieyu Chen from Environ. Sci.: Water Res. Technol., 2023, 9, 2472.

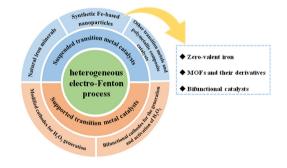


Inside cover See Rukayya Ibrahim Muazu, Siddharth Gadkari et al., pp. 2487-2500. Image reproduced by permission of Siddharth Gadkari from Environ. Sci.: Water Res. Technol., 2023, 9, 2487.

CRITICAL REVIEWS

Transition metal catalysts in the heterogeneous electro-Fenton process for organic wastewater treatment: a review

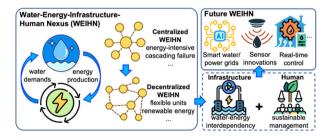
Jieru Guo, Ge Song, Xuyang Zhang and Minghua Zhou*



2446

Next generation decentralized water systems: a water-energy-infrastructure-human nexus (WEIHN) approach

Yuankai Huang, Jintao Zhang, Zheng Ren, Wenjun Xiang, Iram Sifat, Wei Zhang,* Jin Zhu* and Baikun Li*



Executive Editor Neil Scriven Deputy Editor

Grace Thoburn

Development Editor

Editorial Staff

Editorial Production Manager

Claire Darby

Publishing Editors

Emma Carlisle, Hannah Hamilton, Ephraim Otumudia, Irene Sanchez Molina Santos, Michael Spencelayh, Callum Woof, Lauren Yarrow-Wright

Editorial Assistant

Kate Bandoo

Publishing Assistant

Linda Warncke

Publisher

Sam Keltie

For queries about submitted papers please contact Claire Darby, Editorial Production Manager, in the first instance. E-mail: eswater@rsc.org

For pre-submission queries please contact Neil Scriven, Executive Editor. E-mail: eswater-rsc@rsc.org

Environmental Science: Water Research & Technology (electronic: ISSN 2053-1419) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 OWF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £1881; US\$3103. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017; E-mail **advertising@rsc.org**

For marketing opportunities relating to this journal, contact marketing@rsc.org

Environmental Science Water Research & Technology

rsc.li/es-water

Environmental Science: Water Research & Technology seeks to showcase high quality research about fundamental science, innovative technologies, and management practices that promote sustainable water.

Editorial Board

Editor-in-Chief

Graham Gagnon, Dalhousie University, Canada

Associate Editors

Sebastià Puig Broch, Universitat de Girona, Spain

Wenhai Chu, Tongji University, China Lauren Stadler, Rice University, USA Liu Ye, The University of Queensland, Australia

Members

Takahiro Fujioka, Nagasaki University, Japan Xia Huang, Tsinghua University, China Karin Jönsson, Lund University, Sweden Branko Kerkez, University of Michigan, USA Jeonghwan Kim, Inha University, South

Linda Lawton, Robert Gordon University, UK Luca Vezzaro, Technical University of Denmark, Denmark Eveline Volcke, Ghent University, Belgium

Advisory Board

Nicholas Ashbolt, University of Alberta, Canada

Federico Aulenta, National Research Council, Italy

Tom Bond, University of Surrey, UK Joby Boxall, The University of Sheffield, UK Kartik Chandran, Columbia University in the City of New York, USA

Amy Childress, University of Southern California, USA

David M. Cwiertny, University of Iowa, USA Dionysios Dionysiou, University of Cincinnati, USA

Joel Ducoste, North Carolina State University, USA

Jingyun Fang, Sun Yat-Sen University, China Maria José Farré, Catalan Institute for Water Research, Spain

Yujie Feng, Harbin Institute of Technology, China

Kathrin Fenner, Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland

Ramesh Goel, University of Utah, USA Ola Gomaa, National Center for Radiation Research and Technology, Egypt Chris Gordon, University of Ghana, Ghana April Gu, Cornell University, USA Jochen Hack, Leibniz Universität Hannover,

Zhen "Jason" He, Washington University in

Cynthia Joll, Curtin University, Australia Tamar Kohn, École Polytechnique Fédérale de Lausanne, Switzerland Tove Larsen. Swiss Federal Institute of Aquatic

Tove Larsen, Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland Peng Liang, Tsinghua University, China Irene Lo, Hong Kong University of Science and Technology, Hong Kong, China Julie Minton, The Water Research Foundation,

Vincenzo Naddeo, University of Salerno, Italy Indumathi M Nambi, Indian Institute of Technology Madras, India

Long Nghiem, University of Technology Sydney, Australia Paige Novak, University of Minnesota, USA

Yong Sik Ok, Korea University, South Korea Ligy Philip, IIT Madras, India Thalappil Pradeep, Indian Institute of Technology Madras, India Zhiyong 'Jason' Ren, Princeton University,

USA Peter Robertson, Queen's University Belfast,

UK Michael Templeton, Imperial College London

Kai Udert, Swiss Federal Institute of Aquatic Science and Technology, Switzerland Subramanyan Vasudevan, CSIR-Central Electrochemical Research Institute, Karaikudi, India

Luca Vezzaro, Technical University Denmark,

Denmark

Aijie Wang, Research Center for Eco-Environmental Sciences, China Xin Wang, Nankai University, China David Weissbrodt, TU Delft, The Netherlands Krista Wigginton, University of Michigan, USA Di Wu, Ghent University, South Korea Defeng Xing, Harbin Institute of Technology, China

Jeyong Yoon, Seoul National University, South Korea

Information for Authors

Full details on how to submit material for publication in Environmental Science: Water Research & Technology are given in the Instructions for Authors (available from http://www.rsc.org/authors). Submissions should be made via the journal's homepage: rsc.li/es-water

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

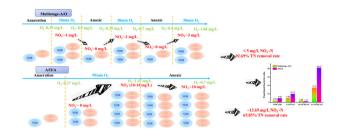
Registered charity number: 207890



2472

Enhanced nitrogen removal in constructed wetlands with a multistage-A/O process

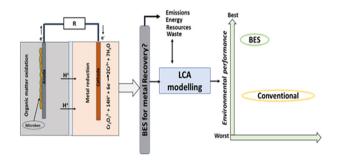
Jieyu Chen, Jie Wang, Xiaoning Wang, Yabing Lv, Ruiya Chen, Juchen Xu, Dapeng Li, Jie Hou* and Xugang He*



2487

Hexavalent chromium waste removal via bioelectrochemical systems - a life cycle assessment perspective

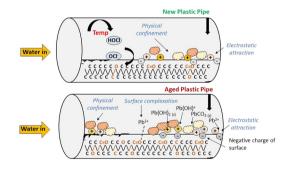
Rukayya Ibrahim Muazu,* Jhuma Sadhukhan, S. Venkata Mohan and Siddharth Gadkari*



2501

Impact of the surface aging of potable water plastic pipes on their lead deposition characteristics

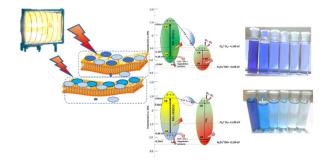
Md Hadiuzzaman, David A. Ladner and Maryam Salehi*



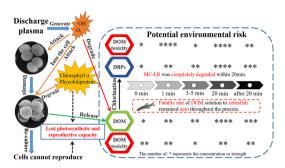
2515

A metal organic framework decorated 2-dimensional nanomaterial based nanocomposite photocatalyst for photocatalytic degradation of dyes from textile industry wastewater

Amol Vijay Sonawane and Z. V. P. Murthy*



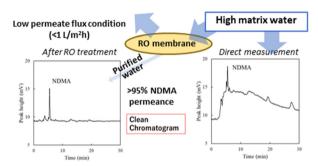
2538



Removal of toxic *Microcystis aeruginosa* using discharge plasma: mechanism and potential environmental risks

Yanshun Gan, Pengcheng Yan, Zhengfei Zhu, Rong Zhang, Guangzhou Qu,* Tiecheng Wang, Ronghua Li and Zengqiang Zhang

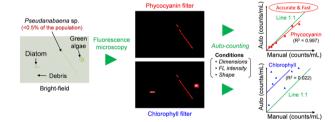
2553



Reverse osmosis membrane-based pretreatment for the quantification of *N*-nitrosodimethylamine concentrations in high-matrix water samples

Hitoshi Kodamatani,* Karin Kubozono, Ryo Kanzaki, Takashi Tomiyasu and Takahiro Fujioka

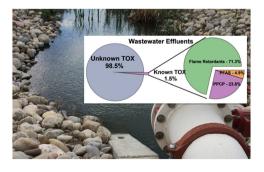
2561



The rapid counting method for 2-MIB-producing cyanobacteria (*Pseudanabaena* sp.) using fluorescence detection of phycocyanin pigments in algal cells

Sandrine Boivin, Eri Hasegawa, Dabide Yamaguchi and Takahiro Fujioka*

2569



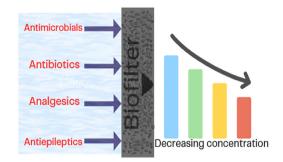
Total organic halogen (TOX) in treated wastewaters: an optimized method and comparison with target analysis

Chad Verwold, Christopher Tremblay, Miriam Patron and Susana Y. Kimura*

2581

Application of biofilters developed under different influent characteristics in attenuating emerging contaminants from wastewater

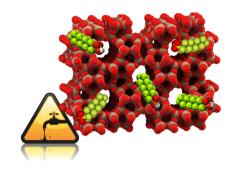
Pinakshi Biswas* and Bhanu Prakash Vellanki



2595

Exploring the adsorption of short and long chain per- and polyfluoroalkyl substances (PFAS) to different zeolites using environmental samples

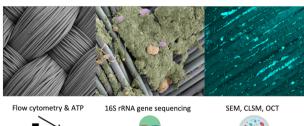
Maura Mancinelli,* Annalisa Martucci and Lutz Ahrens*



2605

Permeate microbiome reflects the biofilm microbial community in a gravity-driven woven-fiber microfiltration (WFMF) system for wastewater treatment

Victor A. Huanambal-Sovero, Leili Abkar, Efemena S. Ovie, Teresa Colangelo, Timothy R. Julian and Sara E. Beck*



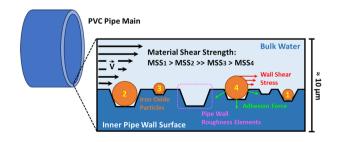




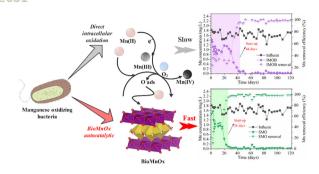


Examining the conditioning factors that influence material shear strength of particle deposits in a fullscale drinking water distribution laboratory

Artur Sass Braga* and Yves Filion



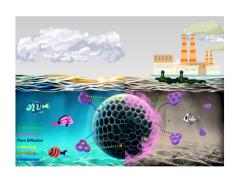
2631



Acceleration of sand filtration start-up for manganese-containing groundwater treatment: microbial-mediated autocatalytic oxidation of manganese oxides

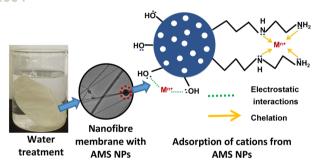
Haiyang Yang, Langming Bai, Huarong Yu, Xinying Shu, Xiaobin Tang, Xing Du, Fangshu Qu,* Hongwei Rong, Guibai Li and Heng Liang*

2643



Sustainable high-efficiency removal of cationic and anionic dyes using new super adsorbent biochar: performance, isotherm, kinetic and thermodynamic evaluation

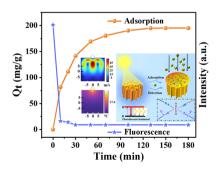
Elias Mosaffa, Atanu Banerjee* and Hossein Ghafuri



Electrospun amine-functionalized silica nanoparticles-cellulose acetate nanofiber membranes for effective removal of hardness and heavy metals (As(v), Cd(II),Pb(II)) in drinking water sources

Senuri Kumarage, Imalka Munaweera,* Chanaka Sandaruwan, Laksiri Weerasinghe and Nilwala Kottegoda

2680



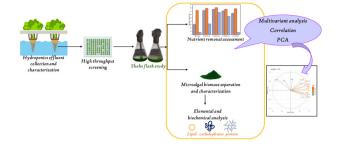
A fluorescent N-doped carbon dot-hydrogel composite for concurrent selective detection and local hot spot promoted adsorption of uranium(vi)

Qun Wang,* Tao Han, Caiqin Miao, Wei Qin and Xiaohong Wu*

2692

Photosynthetic bioconversion of hydroponic effluent into biochemical-rich biomass for microalgal biorefineries

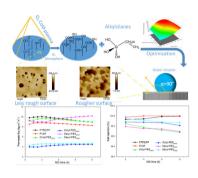
Harshit Tiwari and Sanjeev Kumar Prajapati*



2706

Environment-friendly fluoride-free membranes from plasma-activated hydrophilic PES and alkylsilanes applied in MD: grafting optimization, surface properties, and performance

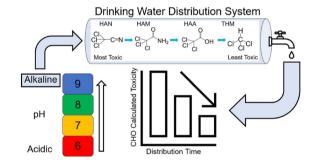
Hieu Trung Nguyen, Linh Gia Huynh, Ya-Fen Wang, Xuan-Thanh Bui and Sheng-Jie You*



2725

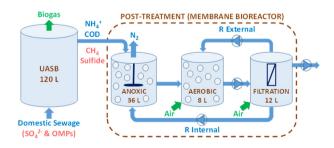
Reduction of haloacetonitrile-associated risk by adjustment of distribution system pH

Kevin Stewart, Dong An and David Hanigan*

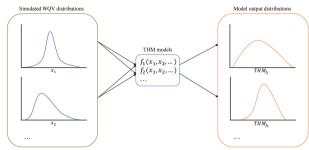


Impact of dissolved sulfide on a hybrid membrane bioreactor treating the effluent of a mainstream upflow anaerobic sludge blanket

Tomás Allegue,* Adrián Arias, Alberto Liñares, Francisco Omil and Juan Manuel Garrido



2745



Predictive capability of THM models for drinking water treatment and distribution

Derek Hogue,* Pitu B. Mirchandani and Treavor H. Boyer*