

Environmental Science Processes & Impacts

rsc.li/espi

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 2050-7887 CODEN ESPICZ 25(7) 1135–1254 (2023)



Cover

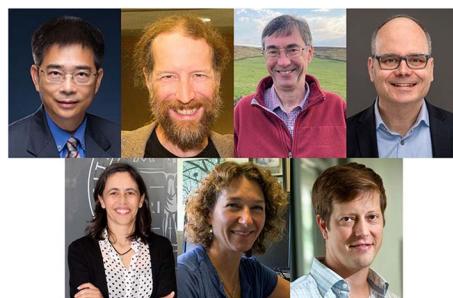
See Theodora Nah *et al.*, pp. 1150–1168. Image reproduced by permission of Theodora Nah from *Environ. Sci.: Processes Impacts*, 2023, 25, 1150.

EDITORIAL

1141

Best Papers from 2022 published in the Environmental Science journals of the Royal Society of Chemistry

Zongwei Cai, Neil Donahue, Kevin C. Jones, Kristopher McNeill, Célia Manaia, Paige J. Novak and Peter J. Vikesland

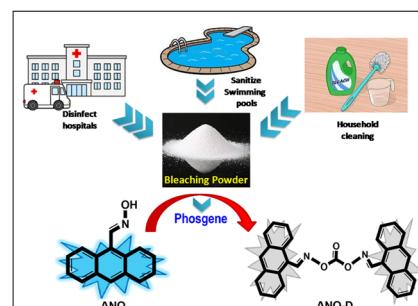


COMMUNICATION

1144

Detection of exposed phosgene in household bleach: development of a selective and cost-effective sensing tool

Shrabani Saha and Prithidipa Sahoo*



Environmental Science Processes & Impacts

rsc.li/espi

Environmental Science: Processes & Impacts is a multidisciplinary journal for the environmental chemical sciences, publishing high quality papers in areas including the chemistry of the air, water, soil and sediment.

Editorial Board

Editor-in-Chief

Kristopher McNeill, ETH Zürich, Switzerland

Associate Editors

Marianne Glasius, Aarhus University, Denmark
Qian Liu, Research Center for Eco-

Environmental Sciences, Chinese Academy of Sciences, China
Matthew MacLeod, Stockholm University, Sweden
Jasquelin Peña, University of California, Davis, USA
Paul Tratnyek, Oregon Health & Science University, USA

Members

Katyte Altieri, University of Cape Town, South Africa
Dilmilla Aristilde, Northwestern University, USA
Amila de Silva, Environment and Climate Change Canada, Canada
Beate Escher, Helmholtz Centre for Environmental Research, Germany
Mingliang Fang, Fudan University, China
Delphine Farmer, Colorado State University, USA

Weihua Song, Fudan University, China

Lenny Winkel, Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland
Cora Young, York University, Canada

Advisory Board

Urs Baltensperger, Paul Scherrer Institute, Switzerland
Alexandria Boehm, Stanford University, USA
Richard Brown, National Physical Laboratory, UK
Junji Cao, Institute of Earth Environment, CAS, China
Kathrin Fenner, Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland
Tamara Galloway, University of Exeter, UK
Philip Gschwend, Massachusetts Institute of Technology, USA
Liang-Hong Guo, China Jiliang University, China
Colleen Hansel, Woods Hole Oceanographic Institution, USA
Hans Christian Bruun Hansen, University of

Copenhagen, Denmark
Stuart Harrad, University of Birmingham, UK
Heileen Hsu-Kim, Duke University, USA
Jianying Hu, Peking University, China
Young-Shin Jun, Washington University in St. Louis, USA
Andreas Kappler, University of Tübingen, Germany
Karen Kidd, McMaster University, Canada
Edward Kolodziej, University of Washington, USA
Ruben Kretzschmar, ETH Zürich, Switzerland
Linsey Marr, Virginia Polytechnic Institute and State University, USA
Derek Muir, Environment & Climate Change Canada, Canada
Kara Nelson, University of California, Berkeley, USA

Jasquelin Peña, University of California, Davis, USA
Noelle Selin, Massachusetts Institute of Technology, USA
Susan Solomon, Massachusetts Institute of Technology, USA
Elsie Sunderland, Harvard University, USA
Sachchida Nand Tripathi, Indian Institute of Technology Kanpur, India
David Waite, University of New South Wales, Australia
Frank Wania, University of Toronto at Scarborough, Canada
Guang-Guo Ying, South China Normal University, China

Information for Authors

Full details on how to submit material for publication in *Environmental Science: Processes & Impacts* 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/espi. 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

Editorial Staff

Executive Editor

Neil Scriven

Deputy Editor

Grace Thoburn

Development Editor

Nour Tanbouza

Editorial Production Manager

Claire Darby

Publishing Editors

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

Editorial Assistant

Kate Bandoo

Publishing Assistant

Linda Warneke

Publisher

Sam Keltie

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

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

Environmental Science: Processes & Impacts (electronic: ISSN 2050-7895) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

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: £1839 US\$3301. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only 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

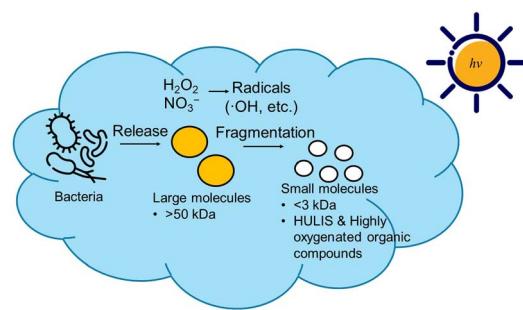
For marketing opportunities relating to this journal, contact marketing@rsc.org

PAPERS

1150

Emerging investigator series: aqueous photooxidation of live bacteria with hydroxyl radicals under cloud-like conditions: insights into the production and transformation of biological and organic matter originating from bioaerosols

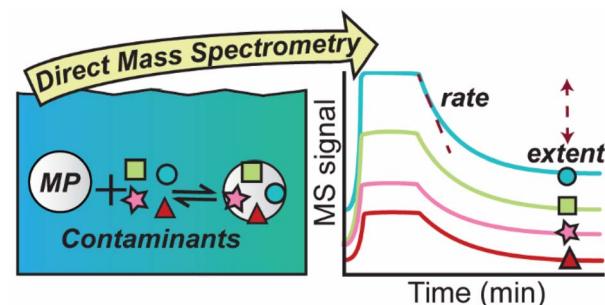
Yushuo Liu, Patrick K. H. Lee and Theodora Nah*



1169

Monitoring microplastic-contaminant sorption processes in real-time using membrane introduction mass spectrometry

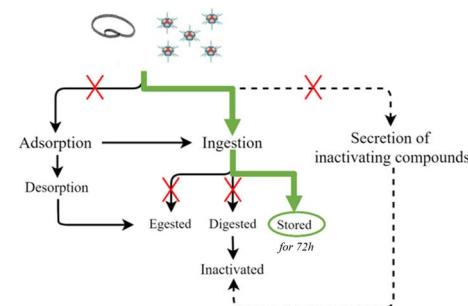
Misha Zvekic, Gregory W. Vandergrift, Christine C. Tong, Chris G. Gill and Erik T. Krogh*



1181

Uptake without inactivation of human adenovirus type 2 by *Tetrahymena pyriformis* ciliates

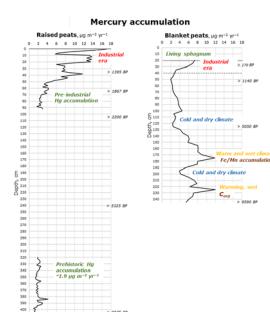
Margot Olive, Jean Daraspe, Christel Genoud and Tamar Kohn*



1193

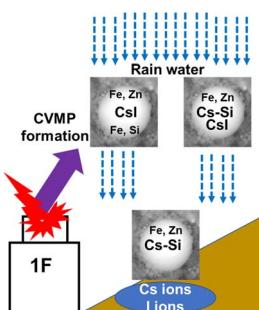
Prehistoric and technogenic loads of Hg in raised and blanket peats from the lower Amur River basin, eastern Asia

Fyodor S. Kot,* Valentina B. Bazarova, Mikhail A. Klimin, Irina O. Dugina and Tatyana A. Kopoteva



PAPERS

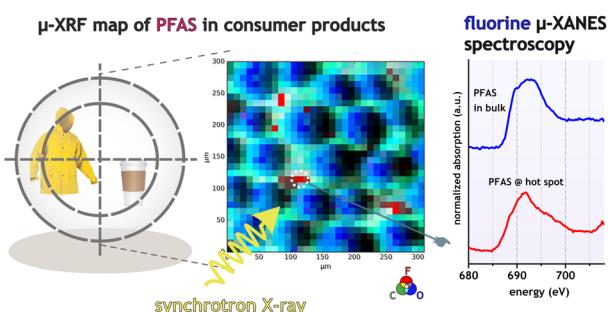
1204



Chemical species of cesium and iodine in condensed vaporized microparticles formed by melting nuclear fuel components with concrete materials

Toshihiko Ohnuki,* Jian Ye, Tomoaki Kato, Jiang Liu, Masahide Takano, Naofumi Kozai and Satoshi Utsunomiya

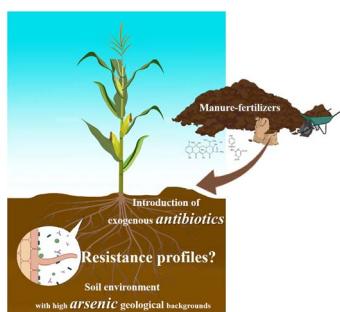
1213



Taking a look at the surface: μ-XRF mapping and fluorine K-edge μ-XANES spectroscopy of organofluorinated compounds in environmental samples and consumer products

Philipp Roesch,* Christian Vogel,* Philipp Wittwer, Thomas Huthwelker, Camelia N. Borca, Thomas Sommerfeld, Stephanie Kluge, Christian Piechotta, Ute Kalbe and Franz-Georg Simon

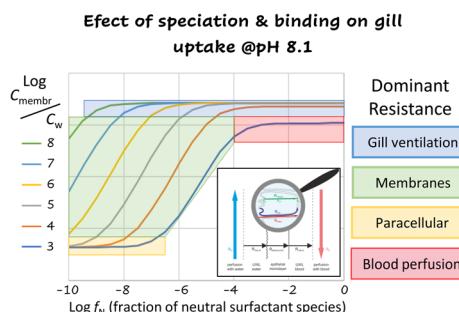
1224



Resistance profiles of microbial communities in maize rhizospheres to the introduction of exogenous antibiotics to agricultural systems with a high arsenic geological background

Moxin Xu, Jinping Jiang, Ying Feng, Xiaofeng Li, Lili Ye and Yongshan Chen*

1238



A framework for understanding the bioconcentration of surfactants in fish

Michael S. McLachlan,* Andrea Ebert, James M. Armitage, Jon A. Arnot and Steven T. J. Droke

