

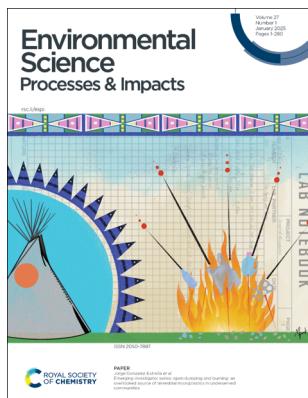
Environmental Science Processes & Impacts

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 27(1) 1–280 (2025)



Cover

See Jorge Gonzalez-Estrella *et al.*, pp. 52–62. Image reproduced by permission of Mallory Quetawki (Zuni), Center for Native Environmental Health Equity P50MD015706 from *Environ. Sci.: Processes Impacts*, 2025, 27, 52.



Inside cover

See Probir Kumar Ojha *et al.*, pp. 76–90. Image reproduced by permission of Probir Kumar Ojha from *Environ. Sci.: Processes Impacts*, 2025, 27, 76.

CRITICAL REVIEWS

10

An introduction to machine learning tools for the analysis of microplastics in complex matrices

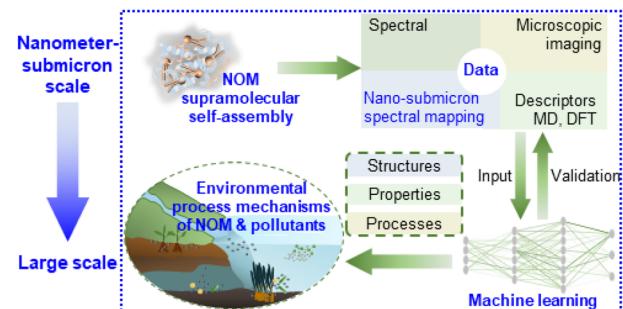
Brian R. Coleman*



24

Advancing micro-nano supramolecular assembly mechanisms of natural organic matter by machine learning for unveiling environmental geochemical processes

Ming Zhang, Yihui Deng, Qianwei Zhou, Jing Gao, Daoyong Zhang* and Xiangliang Pan*



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

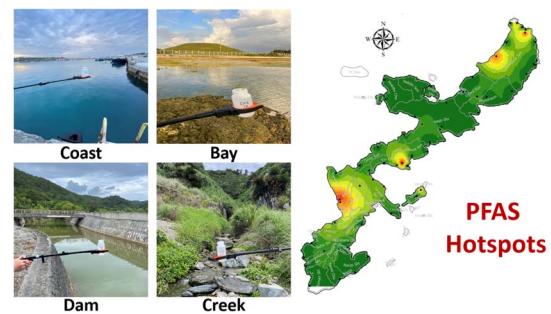


COMMUNICATION

46

PFAS surveillance within a highly militarized island: a case study of Okinawa, Japan

Camden G. Camacho, Kaylie Anne Costa, Shannon McMahon, Jeffrey Jolly, Timothy Ravasi, Joe Aufmuth and John A. Bowden*

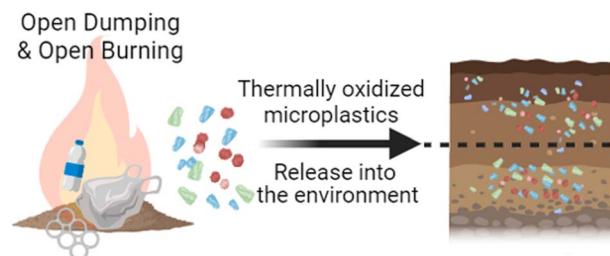


PAPERS

52

Emerging investigator series: open dumping and burning: an overlooked source of terrestrial microplastics in underserved communities

Kendra Z. Hess, Kyle R. Forsythe, Xuewen Wang, Andrea Arredondo-Navarro, Gwen Tipling, Jesse Jones, Melissa Mata, Victoria Hughes, Christine Martin, John Doyle, Justin Scott, Matteo Minghetti, Andrea Jilling, José M. Cerrato, Eliane El Hayek and Jorge Gonzalez-Estrella*



63

Localized regional environmental risk in mountainous urban areas of Southwest China: identification, assessment, and management strategies in Kunming

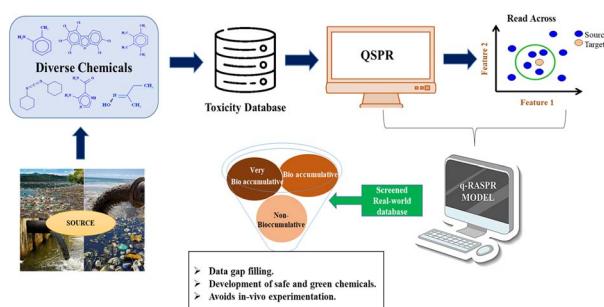
Wei Jin, Qianwen Mo, Guihong Li, Gang Wang, Binqiang Zhu, Xing Wan, Peng Lin, Bin Huang* and Xuejun Pan*



76

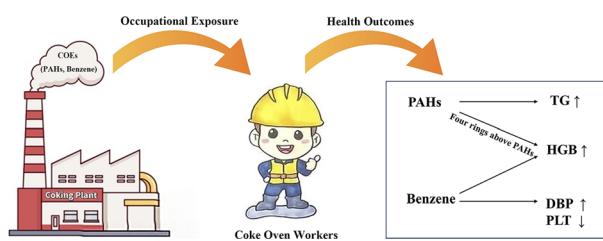
Quantitative read-across structure–property relationship (q-RASPR): a novel approach to estimate the bioaccumulative potential for diverse classes of industrial chemicals in aquatic organisms

Prodipta Bhattacharyya, Pabitra Samanta, Ankur Kumar, Shubha Das and Probir Kumar Ojha*



PAPERS

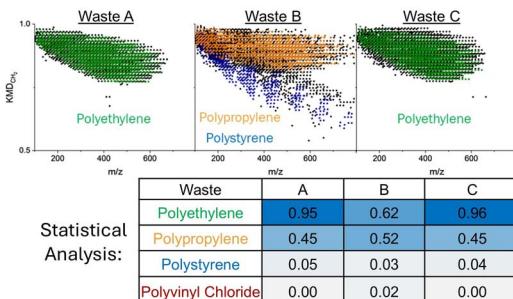
91



Associations of coke oven emission exposure with pulmonary function, blood pressure, blood cell parameters, and biochemical indices in coking workers: a cross-sectional pilot study

Min Sun, Xin Li, Mengmeng Geng, Xiaoling Zhou, Zhiyan Zhang, Huixiang Nie, Na Xia, Guoshun Huang, Xuhong Wang and Hongmei Zhang*

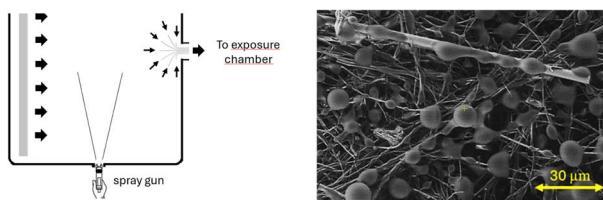
104



Chemical characterization of polymer and chloride content in waste plastic materials using pyrolysis – direct analysis in real time – high-resolution mass spectrometry

Emily Halpern, Lauren Heirty, Christopher West, Yitao Li, Won M. Kim, Anthony S. Mennito and Alexander Laskin*

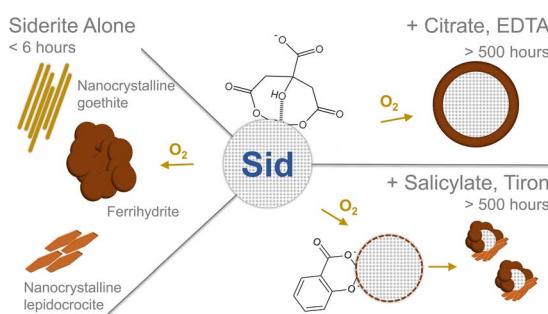
119



Validation of a laboratory spray generation system and its use in a comparative study of hexamethylene diisocyanate (HDI) evaluation methods

Hugues Ahentio, Loïc Wingert, Sébastien Gagné, Livain Breau, Jacques Lesage and Simon Aubin*

133



Low molecular weight organic acids stabilise siderite against oxidation and influence the composition of iron (oxyhydr)oxide oxidation products

Katherine A. Rothwell,* Laurel K. ThomasArrigo, Ralf Kaegi and Ruben Kretzschmar

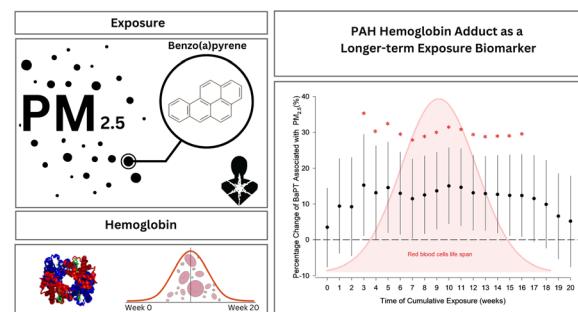


PAPERS

146

Benzo[a]pyrene and phenanthrene hemoglobin adducts as biomarkers of longer-term air pollution exposure

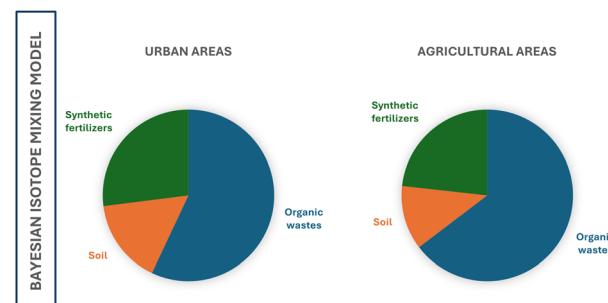
Xiangtian Wang, Yihui Ge, Yan Lin,* Emily A. Craig, Ruoxue Chen, Richard K. Miller, Emily S. Barrett, Sally W. Thurston, Thomas G. O'Connor, David Q. Rich and Junfeng (Jim) Zhang*



154

Tracing nitrate contamination sources and dynamics in an unconfined alluvial aquifer system (Velika Gorica well field, Croatia)

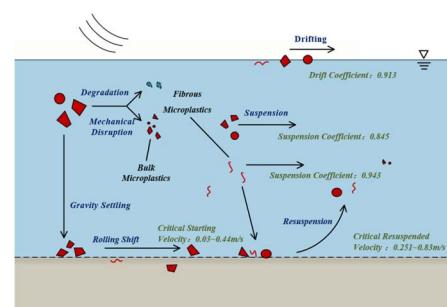
Patricia Buškulić, Zoran Kovač,* Ioannis Matiatos and Jelena Parlov



172

Experimental study on the motion characteristics and critical hydraulic parameters of microplastics in a freshwater environment

Ming Dou,* Zhen Wang, Yuxuan Li, Bin Sun, Yongyong Zhang, Yuze Zhou and Ruipeng Jia



188

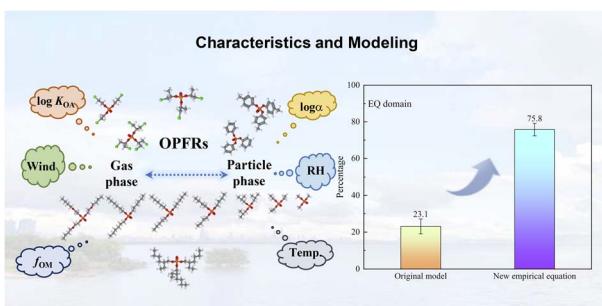
Modelling indoor radical chemistry during the HOMEChem campaign

Freja F. Østerstrøm, Toby J. Carter, David R. Shaw, Jonathan P. D. Abbatt, Andrew Abeleira, Caleb Arata, Brandon P. Bottorff, Felipe J. Cardoso-Saldaña, Peter F. DeCarlo, Delphine K. Farmer, Allen H. Goldstein, Lea Hildebrandt Ruiz, Tara F. Kahan, James M. Mattila, Atila Novoselac, Philip S. Stevens, Emily Reidy, Colleen Marciel F. Rosales, Chen Wang, Shan Zhou and Nicola Carslaw*



PAPERS

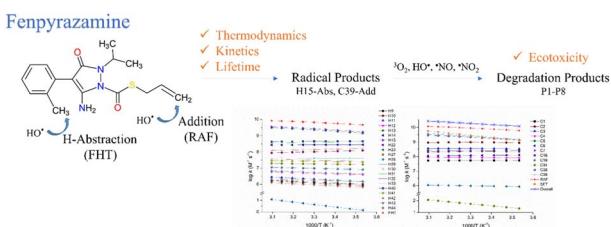
202



A new empirical equation for the gas/particle partitioning of OPFRs in ambient atmosphere

Man Li, Wenhao Hou, Lina Qiao,* Hong Zhang, Mengdan Wang, Yonghui Wen and Zejiang Jia

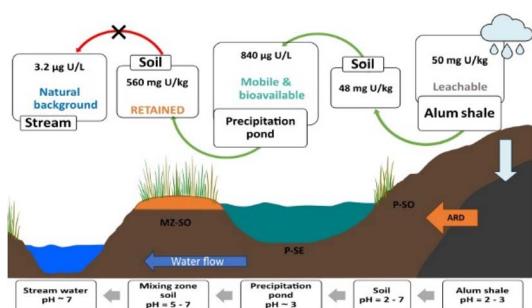
211



A theoretical study on the environmental oxidation of fenpyrazamine fungicide initiated by hydroxyl radicals in the aqueous phase

Hisham K. Al Rawas,* Dinh Hieu Truong, Emma Schell, Jennifer Faust, Sonia Taamalli, Marc Ribaucour, Abderrahman El Bakali, Nissrin Alharzali, Duy Quang Dao* and Florent Louis

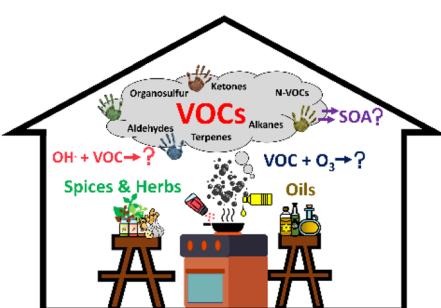
225



Environmental impact of an acid-forming alum shale waste rock legacy site in Norway

Mila K. Pelkonen,* Estela Reinoso-Maset, Gareth T. W. Law, Ole Christian Lind and Lindis Skipperud

244



Fingerprinting the emissions of volatile organic compounds emitted from the cooking of oils, herbs, and spices

Ashish Kumar,* Catherine O'Leary, Ruth Winkless, Matthew Thompson, Helen L. Davies, Marvin Shaw, Stephen J. Andrews, Nicola Carslaw and Terry J. Dillon*

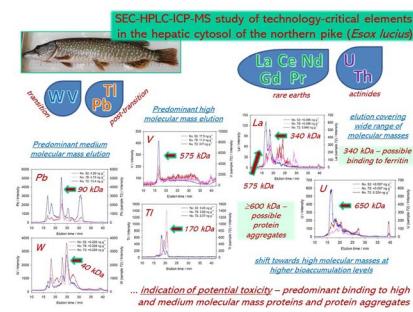


PAPERS

262

Preliminary insight into the intracellular behaviour of rare earths and other technology-critical elements (TCEs) in northern pike liver: study of TCE-binding biomolecules *via* size-exclusion HPLC-ICP-MS

Zrinka Dragun,* Zoran Kiralj, Željka Fiket and Dušica Ivanković



CORRECTION

277

Correction: Fluorinated aromatic PCBTF and 6:2 diPAP in bridge and traffic paints

Mitchell L. Kim-Fu, Ansel R. Moll, Esteban E. Hernandez, Boris Droz, Thierry N. J. Fouquet and Jennifer Field*