Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

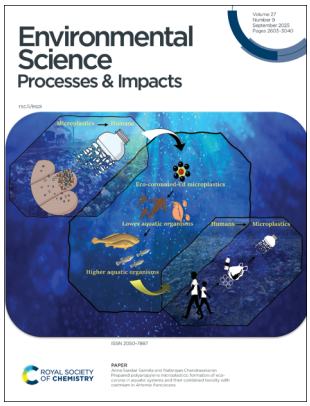
Environmental Science Processes & Impacts

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(9) 2603–3040 (2025)



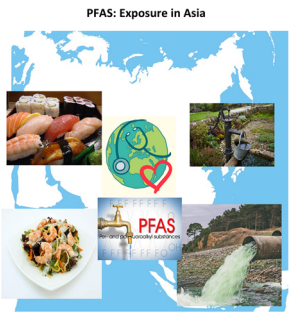
Cover
See Anna Sundar Sarmila and Natarajan Chandrasekaran, pp. 2655–2672. Image reproduced by permission of Natarajan Chandrasekaran from *Environ. Sci.: Processes Impacts*, 2025, **27**, 2655. Image created with Biorender.com.

CRITICAL REVIEWS

2614

Human exposure to per- and poly-fluoroalkyl substances (PFAS) in Asia and contributing factors, with a focus on East Asia

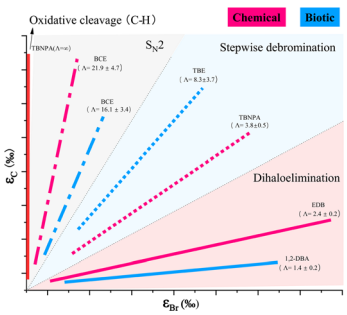
Rai S. Kookana,* Bo Sha, Jobriell C. Baluyot, Karl C. Bowles, Melanie Kah, Lokesh P. Padhye, Guang G. Ying, Divina Navarro, Michael C. Velarde, Christopher P. Higgins and Ian T. Cousins*



2636

Compound-specific stable carbon and bromine isotope analysis tracking transformation mechanisms of organobrominated contaminants: a review of principles, methodologies and applications

Haoyu Zeng, Songsong Chen,* Xiao Liu, Weiwei Zhang, Ying Liu, Yongzhi Wang and Limin Ma*



View Article Online

ROYAL SOCIETY OF CHEMISTRY

Environmental Science: Atmospheres

GOLD OPEN ACCESS

Connecting communities and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers

Registered charity number: 207890

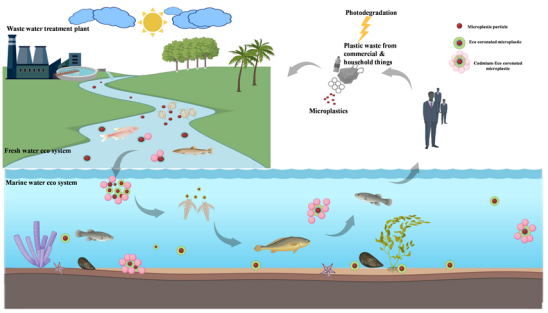
Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

2655

Prepared polypropylene microplastics: formation of eco-corona in aquatic systems and their combined toxicity with cadmium in *Artemia franciscana*

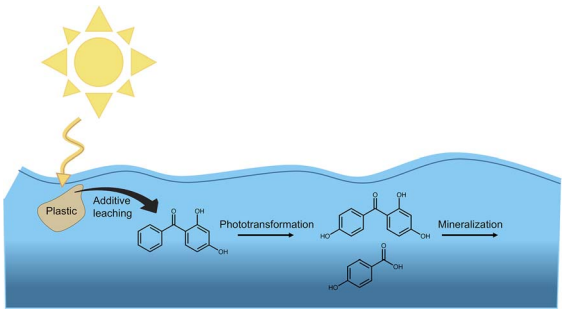
Anna Sundar Sarmila and Natarajan Chandrasekaran*



2673

Emerging investigator series: release and phototransformation of benzophenone additives from polystyrene plastics exposed to sunlight

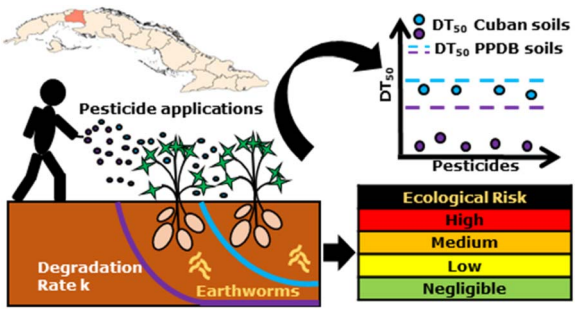
Casey Smith, D. Howard Fairbrother and Carsten Prasse*



2685

Extended pesticide soil monitoring in Cuban potato (*Solanum tuberosum* L.) production: residue co-occurrence, dissipation rates, ecological risks, and implications

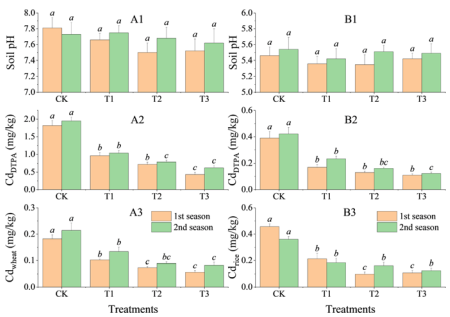
Brizeidi Peña, Isabel Hilber, Dayana Sosa,* Arturo C. Escobar and Thomas D. Bucheli*



2698

Environmental stability characteristics of the immobilization effect of sulfhydryl grafted palygorskite on soil-available cadmium

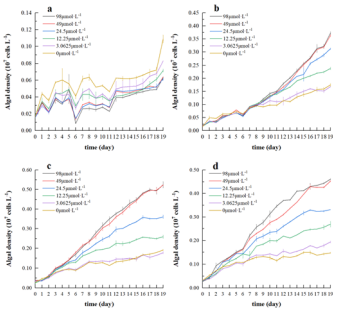
Miao Wang, Xusheng Gao, Xilin Chen, Yifei Shu, Qingqing Huang, Lin Wang, Xu Qin, Yuebing Sun, Yujie Zhao and Xuefeng Liang*



Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

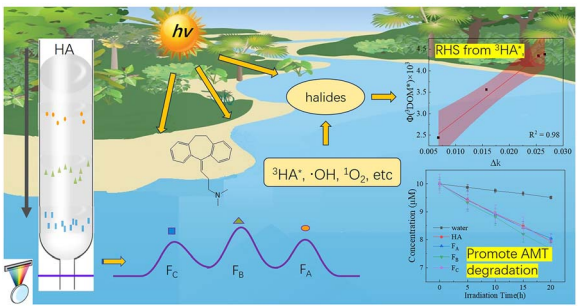
2713



Explosive mechanism of red jets *Heterosigma akashiwo* and *Chaetoceros mulleri* under different culture conditions

Weijie Pan, Meilin Wu* and Hui Zhao*

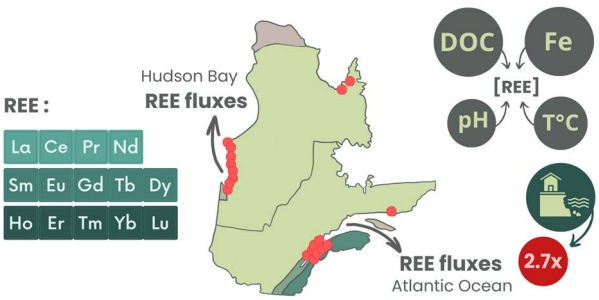
2730



Fractionation of humic acid and its effects on the photodegradation of amitriptyline in water

Li Zhiwen, Liu Hui,* Li Tie, Ou Xiaoxia, Wang Kaixuan and Sun Bing

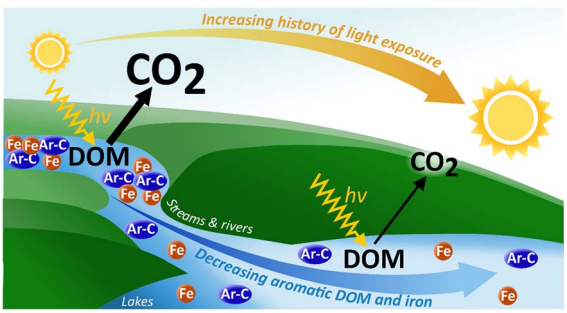
2740



Drivers and riverine fluxes of rare earth elements to coastal ecosystems across temperate, boreal, and subarctic ecoregions in Eastern Canada

Marie-Christine Lafrenière, Md Samrat Alam, Jean-François Lapierre, Dominic E. Ponton, Maxime Wauthy, Caroline Fink-Mercier, Holly Marginson, Paul del Giorgio and Marc Amyot*

2755



Controls on the apparent quantum yield for photomineralization of dissolved organic matter in arctic freshwaters

Emma C. Rieb, Catherine A. Polik, George W. Kling and Rose M. Cory*

This journal is © The Royal Society of Chemistry 2025

Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

2770

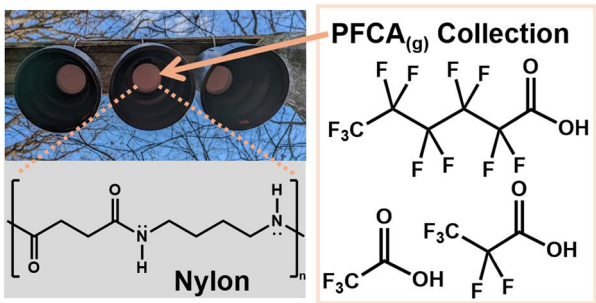
Dichloroethene reduction by Fe(II): role of transient Fe(II) phases

Caroline E. Chelsvig, Malvika Patial, Drew E. Latta, Paul G. Tratnyek, Anke Neumann and Michelle M. Scherer*

2785

Selective ultra-trace atmospheric passive sampling of gaseous perfluoroalkyl carboxylic acids

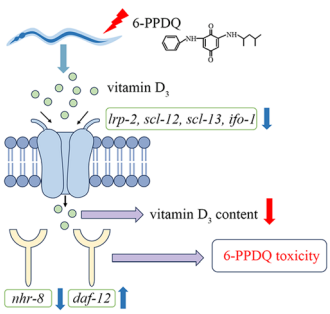
Eric Vanhauwaert, Lindy Carmichael, Irina Nistorescu, Leigh R. Crilley, Chubashini Shunthirasingham, Hayley Hung, Cora J. Young* and Trevor C. VandenBoer*



2798

Environmentally relevant concentrations of 6-PPDQ disrupt vitamin D3 adsorption and receptor function in *Caenorhabditis elegans*

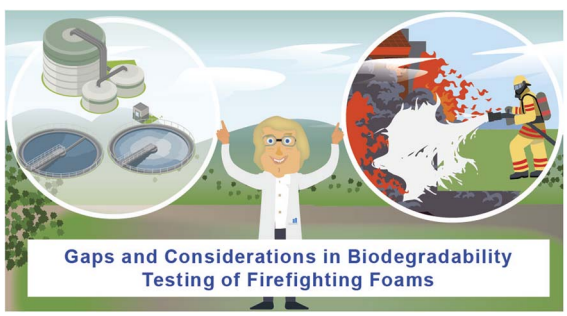
Jingwei Wu, Liane Li, Dayu Hu, Ran Liu, Qian Bian and Dayong Wang*



2809

Fluorine-free foams exhibit incomplete aerobic and anaerobic biodegradation, create redox-specific byproducts and shift microbial communities

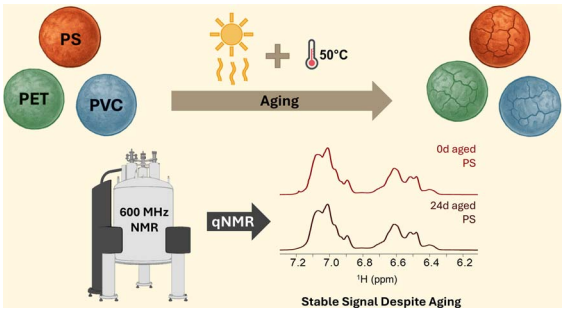
Michael Penrose, Mahsa Modiri, Vicente Gomez-Alvarez, Hodon Ryu, Mallikarjuna N. Nadagouda and Mohamed Ateia*



Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

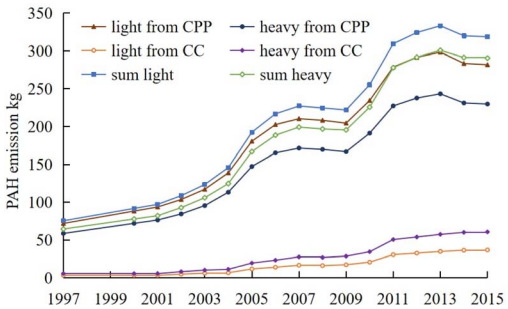
2821



Overcoming the challenge of quantifying aged microplastic by qNMR spectroscopy

Julia Schmidt,* Marte Haave and Wei Wang

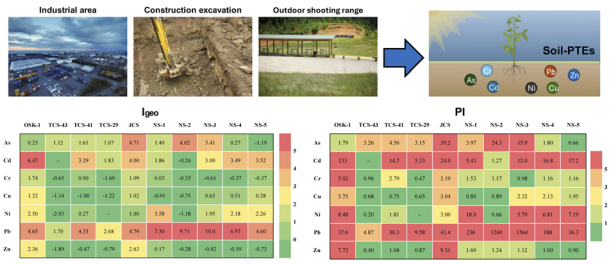
2835



Historical input and sources of polycyclic aromatic hydrocarbons in aquatic sediments

Aili Li,* Bingni Zhang, Jin Zhang and Christoph Schüth

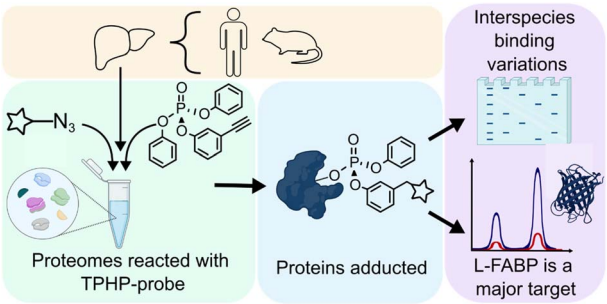
2848



Integrating pollution indices and Monte Carlo simulation for a comprehensive risk assessment of potentially toxic elements in soils

Shafiqur Rahman,* Shengbin Ni, Suman Barua, Shoji Yoshioka, Minami Imaizumi, Kuo H. Wong, Asami S. Mashio, Ismail M. M. Rahman* and Hiroshi Hasegawa*

2865



Chemical proteomics reveals human liver fatty acid binding protein as a predominant and selective target of triphenyl phosphate

Jolie Miller, Jiajun Han, Diwen Yang, Miriam L. Diamond, Runzeng Liu* and Hui Peng*

This journal is © The Royal Society of Chemistry 2025

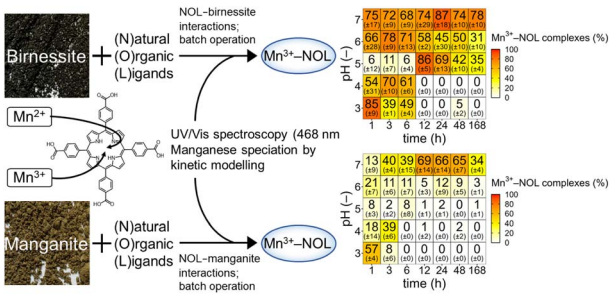
Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

2875

Dissolved trivalent manganese in forest soils – interactions of natural organic ligands with manganese oxides

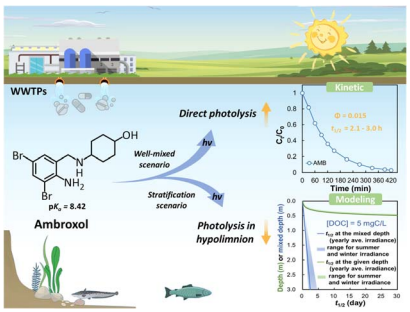
Constantin Lux,* Kristian Ufer and Tim Mansfeldt



2894

Natural sunlight-driven phototransformation of the expectorant drug ambroxol in freshwaters

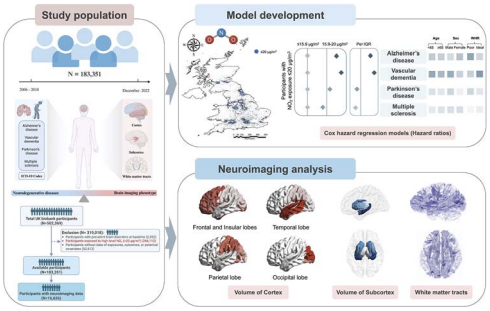
Ying Zhang, Xiaoci Li, Jing Chen, Lei Zhou, Mingbao Feng, Jean-Marc Chovelon and Yuefei Ji*



2906

Long-term exposure to low-level nitrogen dioxide and risks of neurodegenerative diseases among middle-aged and older adults in the UK

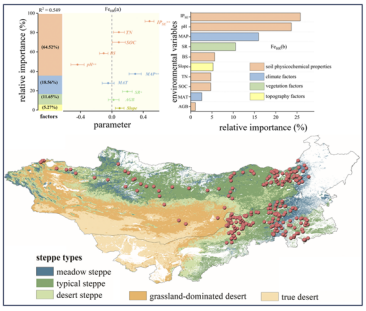
Yujia Bao, Yongxuan Li, Ne Qiang, Yanqiu Zhou, Mike Z. He, Chen Shen, Xiaobei Deng, Jie Yin, Lefei Han* and Jinjun Ran*



2917

Fractionation and mechanism of Fe in the mineral-associated soil fraction from the Mongolian Plateau grasslands

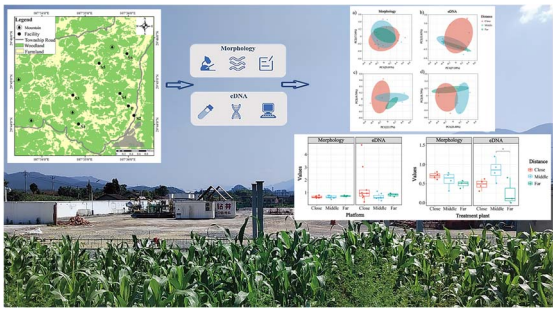
Zhihao Wang, Jin-E Wei, Yuanqing Tang,* Yangzheng Liu, Rong Wei and Changwei Lü*



Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

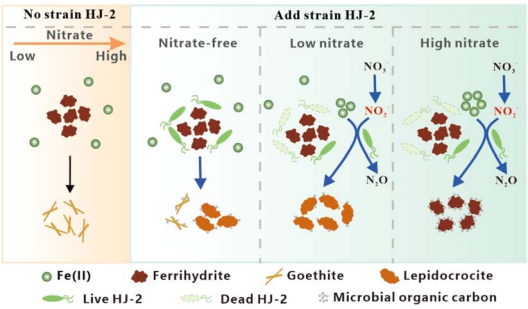
2931



Limited but localized: geochemical and biodiversity impacts of shale gas extraction on soil ecosystems

Shangbo Zhou, Yiyao Li, Xicheng Jin, Shuchan Peng, Changqian Miu, Daijun Zhang and Peili Lu*

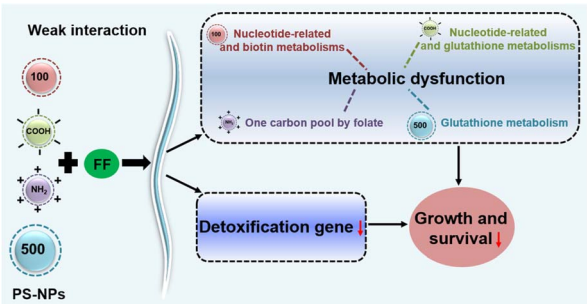
2941



Nitrate concentration mediates iron transformation by an iron-oxidizing–reducing bacterium in the Fe(II)–Fe(III) co-existing system

Rong Peng, Qi Zhu, Shuang Li and Hui Liu*

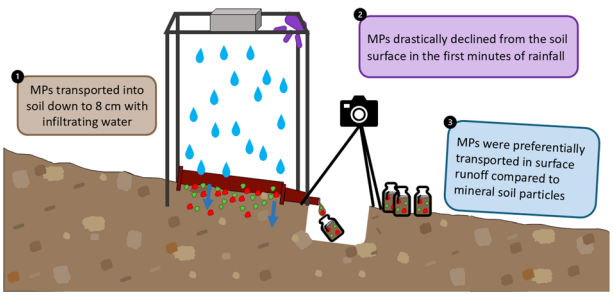
2955



Nanoplastics enhance florfenicol toxicity by disturbing detoxification and metabolic processes in nematodes

Caijiao He, Shuang Zhang, Jie Hou, Yi Chi, Jing Wang, Jiang Xu and Daohui Lin*

2968



Rainfall-induced lateral and vertical microplastic transport of varying sizes in agricultural fields

Emilee Severe,* Saunak Sinha Ray, Wang Li, David Zumr, Tomáš Dostál, Ben W. J. Surridge, Josef Krasa, Florian Wilken, Peter Fiener, Christine Stumpp, Ahsan Maqbool, José Alfonso Gómez, Christian Zafiu and John Quinton

This journal is © The Royal Society of Chemistry 2025

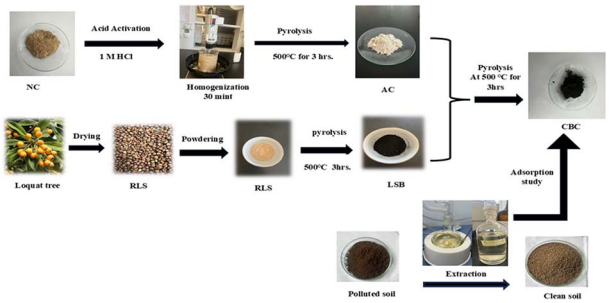
Open Access Article. Published on 17 September 2025. Downloaded on 2/3/2026 5:12:47 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

2982

An eco-friendly approach to soil remediation: evaluating clay–biochar composite for used motor oil removal through kinetic, isotherm, and thermodynamic models

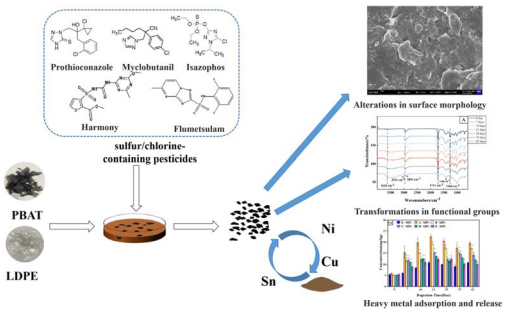
Bzhwen Khalid Majeed,* Khasraw Abdullah Rashid and Dler M. S. Shwan



3002

Influence of sulfur/chlorine-containing pesticides on the aging and heavy metal dynamics of PBAT and LDPE microplastics in soil

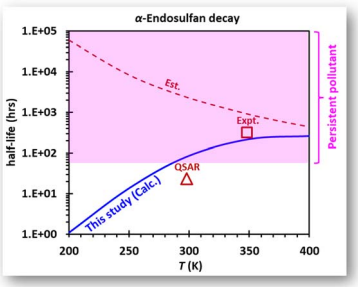
Yi Liu,* Jiafei Xie, Yimiao Lin, Ruojia Li, Liang Zhu and Ying Zhou



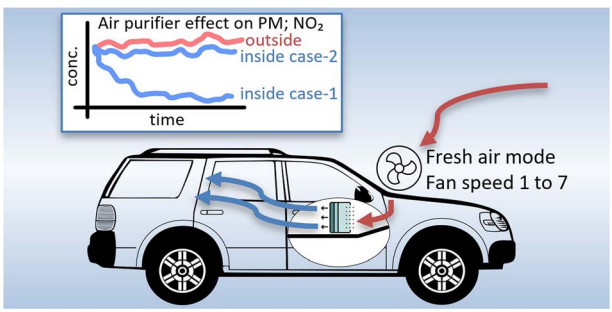
3016

Insights into the atmospheric persistence of α-endosulfan

Loc T. Nguyen, Tam V.-T. Mai* and Lam K. Huynh*



3029

The effect of portable air purifiers and cabin air filters on particulate matter and nitrogen oxides concentrations in vehicle cabins

Evan Renck and Heejung Jung*