

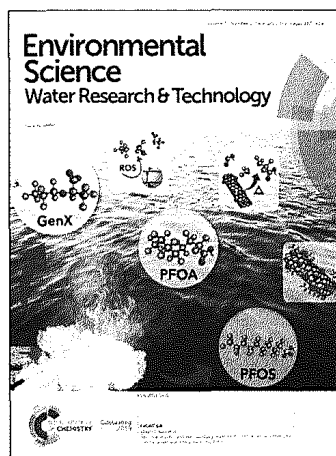
Environmental Science Water Research & Technology

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IN THIS ISSUE

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Cover

See Onur G. Apul *et al.*,
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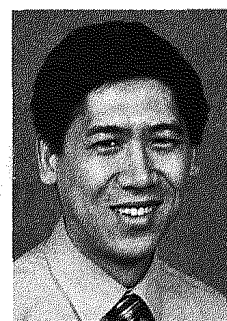
EDITORIAL

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Editorial Perspectives: the value proposition of resource recovery

Zhiyong Jason Ren

Zhiyong Jason Ren provides the first in a series of 'Editorial Perspectives' for *Environmental Science: Water Research & Technology*.



Zhiyong Jason Ren

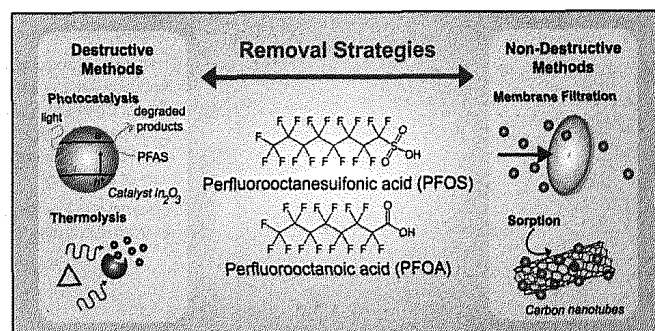
FRONTIER

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Removal of poly- and per-fluoroalkyl substances from aqueous systems by nano-enabled water treatment strategies

Navid B. Saleh, Arsalan Khalid, Yuhao Tian, Craig Ayres,
Indu V. Sabaraya, Jaana Pietari, David Hanigan,
Indranil Chowdhury and Onur G. Apul*

Exceptional properties at the nano-scale, if appropriately
harnessed, will lead to innovations in water treatment.

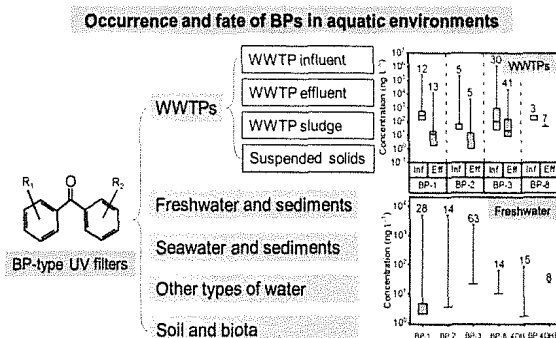


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Occurrence and fate of benzophenone-type UV filters in aquatic environments: a review

Feijian Mao, Yiliang He and Karina Yew-Hoong Gin*

Benzophenone-type ultraviolet filters (BP-type UV filters or BPs) are extensively used in a diverse array of personal care products (PCPs), including sunscreens and many cosmetics.



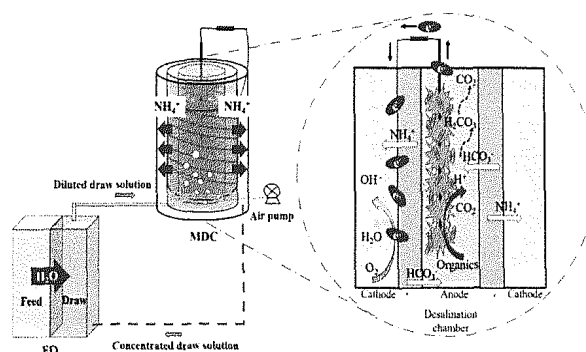
COMMUNICATIONS

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Ammonia removal and recovery from diluted forward osmosis draw solution by using a tubular microbial desalination cell

Nan Zhao, Han Wang, Zhen He* and Qun Yan*

To find an alternative way of draw solute regeneration that is critically important to forward osmosis (FO), a tubular microbial desalination cells (MDCs) is employed to remove and recovery ammonia nitrogen from a mimicked FO draw solution.

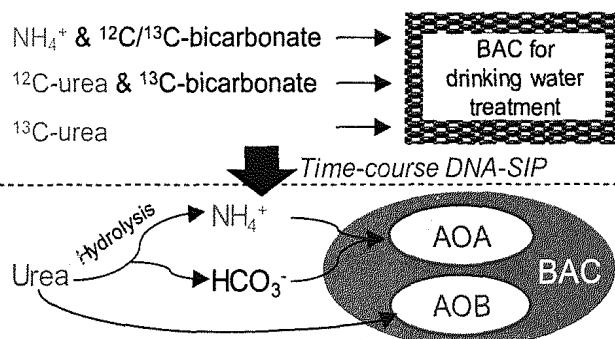


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Growth competition between ammonia-oxidizing archaea and bacteria for ammonium and urea in a biological activated carbon filter used for drinking water treatment

Jia Niu,* Ikuro Kasuga, Futoshi Kurisu and Hiroaki Furumai

By applying time-course DNA-SIP, the substrate niche separation of AOA and AOB was revealed. AOA had higher autotrophic growth activity for a low concentration of ammonium, while AOB directly incorporated and hydrolyzed urea.



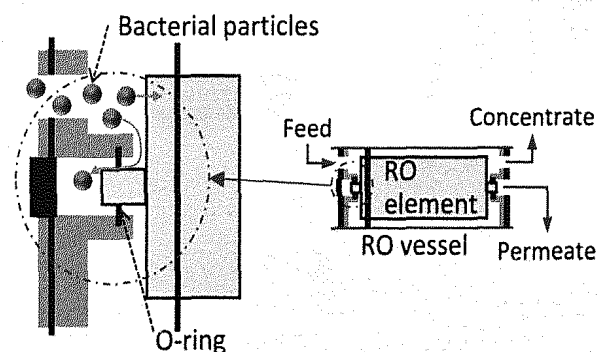
PAPERS

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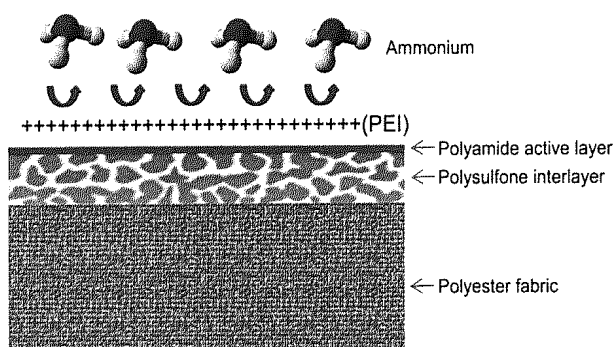
Integrity of reverse osmosis membrane for removing bacteria: new insight into bacterial passage

Takahiro Fujioka,* Anh T. Hoang, Tetsuro Ueyama and Long D. Nghiem

Fluorescent microspheres (surrogates for bacteria) allowed identification of the fact that even an intact O-ring seal can allow for some bacterial passage through the reverse osmosis membrane element.



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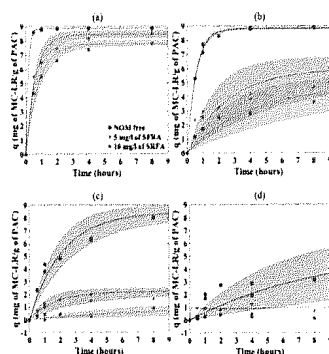


Concentrating ammonium in wastewater by forward osmosis using a surface modified nanofiltration membrane

Shahryar Jafarnejad, Hosung Park, Holly Mayton, Sharon L. Walker and Sunny C. Jiang*

Enhancing ammonium rejection by PEI modification.

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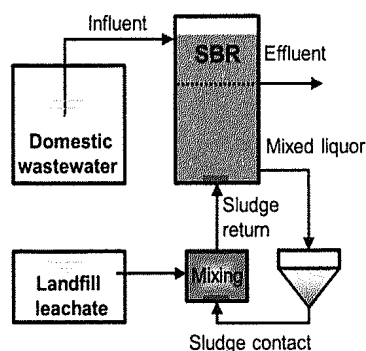


The influence of natural organic matter on the adsorption of microcystin-LR by powdered activated carbon

Asnika Bajracharya, Yen-Ling Liu and John J. Lenhart*

In this study, microcystin-LR (MC-LR) adsorption to four different types of powdered activated carbon (PAC) was evaluated to provide insight into the use of PAC to treat water containing MC-LR.

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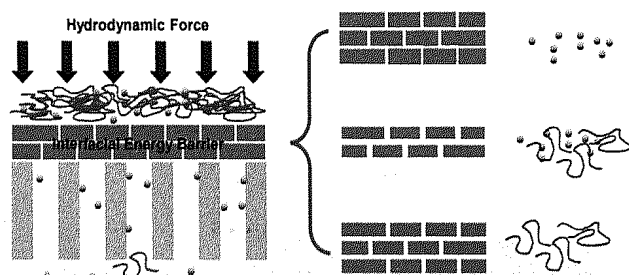


Effect of blending landfill leachate with activated sludge on the domestic wastewater treatment process

Min Zheng, Siqi Li, Qian Dong, Xia Huang and Yanchen Liu*

A sludge contact is proposed to form high-level free ammonia exposure for co-treatment of landfill leachate with domestic wastewater.

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Ultrafiltration membrane fouling performance by mixtures with micromolecular and macromolecular organics

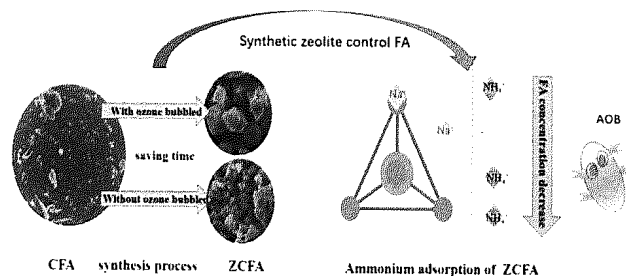
Kuo Gao, Tian Li,* Junxia Liu, Bingzhi Dong and Huaqiang Chu*

Ultrafiltration membrane fouling caused by mixtures of micromolecules (humic acid, HA) and macromolecules (sodium alginate, SA) was studied in a comprehensive manner.

Application of a synthetic zeolite as a storage medium in SBRs to achieve the stable partial nitrification of ammonium

Jing Chen, Xiaojun Wang,* Zhenguo Chen, Xinghui Feng and Xiaokun Chen

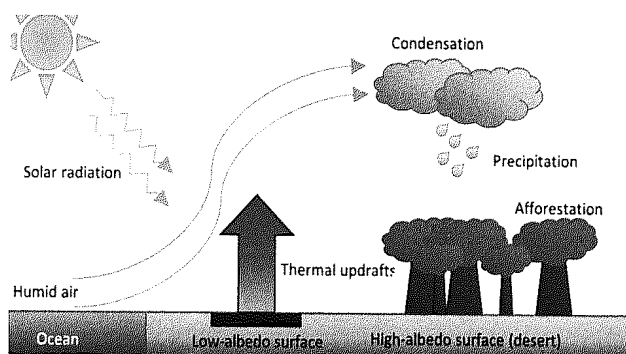
Free ammonia (FA) is the growth substrate for ammonia-oxidizing bacteria (AOB), but a high concentration of FA could also inhibit AOB activities.



Engineering artificial thermal mountains for large-scale water management and carbon drawdown

G. W. Knox,* C. R. McInnes, P. L. Younger and W. T. Sloan

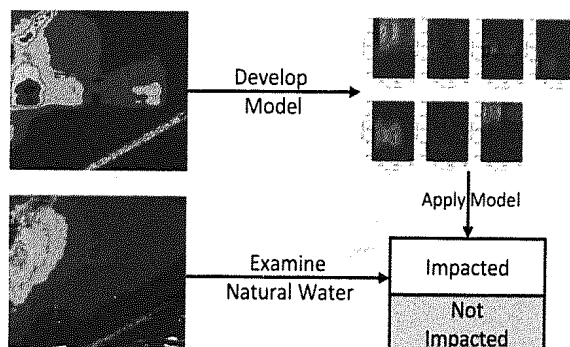
This paper investigates the potential for artificial low-albedo surfaces to induce precipitation, and subsequently, capture carbon.



Fluorescence excitation emission matrices for rapid detection of polycyclic aromatic hydrocarbons and pesticides in surface waters

Ye Z. Yang,* Nicolás M. Peleato, Raymond L. Legge and Robert C. Andrews

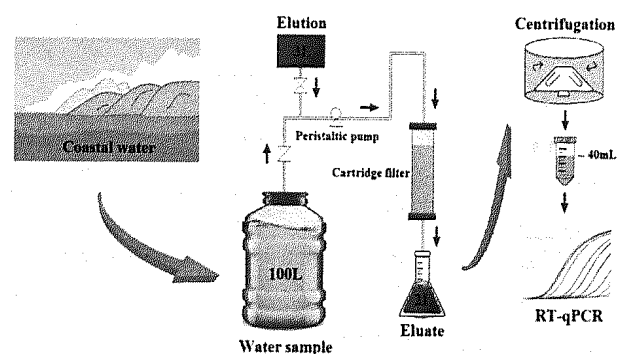
Rapid water quality assessment was evaluated using an automated fluorescence analysis system.



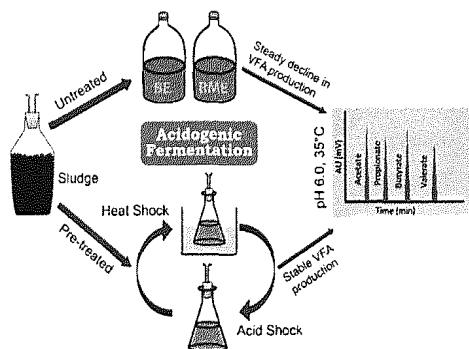
Assessment of an electropositive granule media filter for concentrating viruses from large volumes of coastal water

Jing Miao, Han-Ji Jiang, Zhong-Wei Yang, Dan-yang Shi, Dong Yang, Zhi-Qiang Shen, Jing Yin, Zhi-Gang Qiu, Hua-Ran Wang, Jun-Wen Li and Min Jin*

The EGM filter exhibits virus recovery rates higher than 88% from large volumes of coastal water irrespective of the water quality.



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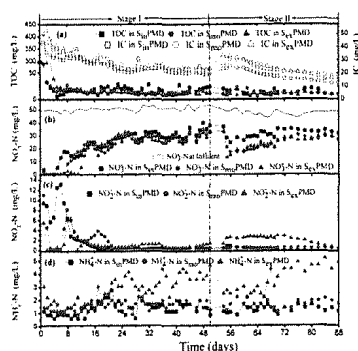


Enhancing the volatile fatty acid production from agro-industrial waste streams through sludge pretreatment

U. Jayakrishnan, Deepmoni Deka and Gopal Das*

Acidogenic bioconversion of agro-industrial effluents into potential biopolymer production media was accomplished by sludge modification with subsequent bioprocess assessment.

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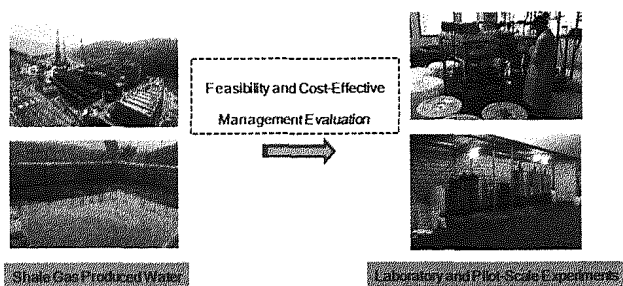


Effect of sawdust dosage and hydraulic retention time (HRT) on nitrate removal in sawdust/pyrite mixotrophic denitrification (SPMD) systems

Shunlong Jin, Chuanping Feng,* Shuang Tong,* Nan Chen, Hengyuan Liu and Jiamin Zhao

Pyrite plays an important role in nitrate-contaminated aquifer remediation.

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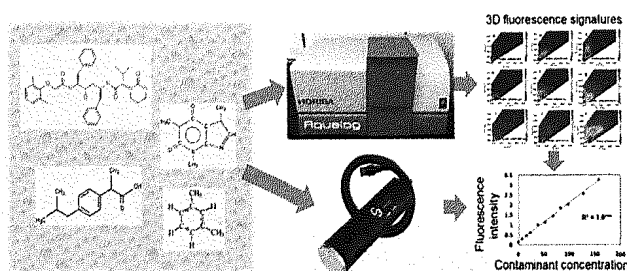


Feasibility evaluation of the treatment and recycling of shale gas produced water: a case study of the first shale gas field in the Eastern Sichuan Basin, China

Zhaoji Zhang,* Yiling Zhuang, Junjie Li, Zejun Zhou and Shaohua Chen*

Laboratory and pilot-scale feasibility evaluation of cost-effective treatment and recycling of shale gas produced water.

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Assessing the potential of fluorescence spectroscopy to monitor contaminants in source waters and water reuse systems

Joseph Wasswa,* Natalie Mladenov and William Pearce

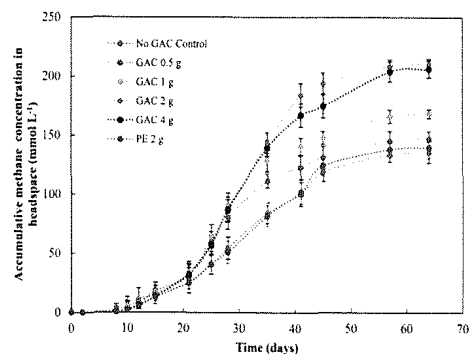
It is of ongoing interest to evaluate real-time instruments for monitoring water contaminants for source water control and water reuse system performance applications.

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Overcoming ammonia inhibition in anaerobic blackwater treatment with granular activated carbon: the role of electroactive microorganisms

Anna Patr cya Florentino, Ahmed Sharaf, Lei Zhang and Yang Liu*

Methanogenesis and enrichment of microorganisms capable of interspecies electron and/or hydrogen exchange was investigated with addition of granular activated carbon (GAC) to batch anaerobic digesters treating vacuum collected blackwater with high ammonia concentration.

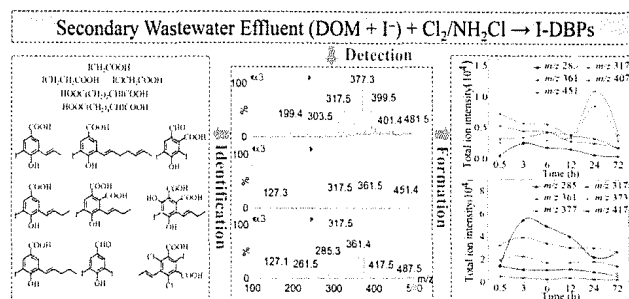


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Detection, identification and control of polar iodinated disinfection byproducts in chlor(am)inated secondary wastewater effluents

Yan Huang, Yangyang Zhang, Qing Zhou, Aimin Li, Peng Shi, Jingfan Qiu* and Yang Pan*

Disinfection of wastewater effluents could generate numerous toxic disinfection byproducts (DBPs) during wastewater reclamation owing to the complexity of their dissolved organic matter.



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Inexpensive microbial dipstick diagnostic for nitrate in water

Kelly G. Aukema and Lawrence P. Wackett*

A rapid, inexpensive, bio-strip was developed for visual quantitation of nitrate in water.



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Fluorescence spectroscopic characterisation of algal organic matter: towards improved *in situ* fluorometer development

Sara I. Khan, Arash Zamyadi, Narasinga Rao Hanumanth Rao, Xiang Li, Richard M. Stuetz and Rita K. Henderson*

Fluorescence based characterisation of the algal organic matter, when combined with cell pigmentation measurements, may improve the specificity and robustness of online fluorometers.

