

## TUTORIAL REVIEW

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### **Effectiveness of roadside vegetated filter strips and swales at treating roadway runoff: a tutorial review**

Alex R. Boger, Laurent Ahiablame,\* Esther Mosase and Dwayne Beck

Water leaving roadside ditches has the potential to affect the quality of downstream waters.

## COMMUNICATION

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### **4-(2-Pyridylazo)-resorcinol-functionalized polyacrylonitrile fiber through a microwave irradiation method for the simultaneous optical detection and removal of heavy metals from water**

Sheng Deng, GuangShan Zhang\* and Peng Wang\*

A PAR-functionalized fiber by microwave irradiation has both colorimetric detection and adsorption abilities for heavy metal ions.

**493**

**Emerging investigators series: a steric pore-flow model to predict the transport of small and uncharged solutes through a reverse osmosis membrane**

Haruka Takeuchi, Hiroaki Tanaka, Long D. Nghiem and Takahiro Fujioka\*

This study proposed a new approach to apply the steric pore-flow model to predict the rejection of eight *N*-nitrosamines and seven VOCs that are of great concern in potable water reuse through an RO membrane.

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**505**

**Effects of ortho- and polyphosphates on lead speciation in drinking water**

Benjamin F. Trueman, Wendy H. Krkošek and Graham A. Gagnon\*

Polyphosphates may increase lead solubility *via* complexation, but the risk is not well characterized. Size-exclusion chromatography with multi-element detection could help determine the prevalence of lead-polyphosphate complexes in drinking water.

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**513**

**Copper current collectors reduce long-term fouling of air cathodes in microbial fuel cells**

Jaewook Myung, Wulin Yang, Pascal E. Saikaly and Bruce E. Logan\*

Long-term operation of wastewater-fed, microbial fuel cells (MFCs) with cathodes made of activated carbon and stainless steel (SS) current collectors can result in decreased performance due to cathode fouling.

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**520**

**Advanced treatment of hydrothermal liquefaction wastewater with nanofiltration to recover carboxylic acids**

Xuesong Zhang,\* John Scott, Brajendra K. Sharma and Nandakishore Rajagopalan\*

Advances in HTL wastewater treatment using nanofiltration technology to recover carboxylic acids.

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**Partial renewal of granular activated carbon biofilters for improved drinking water treatment**

Nashita Moona,\* Kathleen R. Murphy, Mia Bondelind, Olof Bergstedt and Thomas J. R. Pettersson

There is a trend of increasing natural organic matter (NOM) in raw drinking waters of Nordic countries due to climate change.

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**Rapid removal and recovery of emulsified oil from ASP produced water using *in situ* formed magnesium hydroxide**

Wenjing Dong, Dejun Sun, Yujiang Li\* and Tao Wu\*

*In situ* formed magnesium hydroxide (IFM) can be used as a promising technology for emulsified oil removal and recovery.

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**Kinetic and equilibrium adsorption of lead from water using magnetic metformin-substituted SBA-15**

Syed Shahabuddin, Camellia Tashakori, Muhammad Afzal Kamboh, Zahra Sotoudehnia Korrani, R. Saidur,\* Hamid Rashidi Nodeh and Mehdi Esmaeili Bidhendi\*

The present investigation demonstrates the successful and easy approach for the synthesis of magnetic amine-substituted SBA-15 nanocomposite for effective removal of lead ( $Pb^{2+}$ ) ions via adsorption from aqueous environment.

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***In situ* ammonia removal by methanogenic granular biomass**

Shaswati Saha, Jo De Vrieze, Rima Biswas\* and Tapas Nandy

Ammonia-oxidizing bacteria and nitrite-oxidizing *Nitrosira* sp. and acetoclastic methanogens *Methanosaeta* sp. can co-exist together to simultaneously oxidise ammonia and generate methane.

**Pilot scale study of sequencing batch reactor (SBR) retrofit with integrated fixed film activated sludge (IFAS): nitrogen removal and design consideration**

R. Zhao,\* H. Zhao, R. Dimassimo and G. Xu\*

IFAS process was coupled with SBR operation in a pilot-scale reactor to verify the feasibility and to evaluate the performance of IFAS-SBR. Significant nitrification improvement in the IFAS-SBR system was observed, which is attributed to both the introduction of attached-growth biomass on media carriers and the “seeding effect” by biofilm sloughing.