

## **LED revolution: fundamentals and prospects for UV disinfection applications**

Jian Chen, Stephanie Loeb and Jae-Hong Kim\*

This review provides the fundamental and essential knowledge of UV-LEDs to better apply LED technology in environmental application.

## **Emerging investigators series: highly effective adsorption of organic aromatic molecules from aqueous environments by electronically sorted single-walled carbon nanotubes**

John-David R. Rocha,\* Reginald E. Rogers,\*  
Anthony B. Dichiara and Ryan C. Capasse

The use of electronically sorted (*i.e.* semiconducting or metallic) single-walled carbon nanotubes (SWCNTs) for the removal of organic compounds from aqueous environments is investigated.

**Benzotriazole (BT) and BT plant metabolites in crops irrigated with recycled water**

Gregory H. LeFevre, Alicia Lipsky, Katherine C. Hyland, Andrea C. Blaine, Christopher P. Higgins and Richard G. Luthy\*

Novel benzotriazole plant metabolites were quantified for the first time in crops irrigated with recycled water, demonstrating an exposure route.

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**Application of the CANARY event detection software for real-time performance monitoring of decentralized water reuse systems**

Aaron Leow, Jonathan Burkhardt, William E. Platten III, Brian Zimmerman, Nichole E. Brinkman,\* Anne Turner, Regan Murray, George Sorial and Jay Garland

CANARY event detection software integrated measurements from independent online sensors to monitor the water quality of membrane bioreactor effluent for decentralized reuse.

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**Hypoaeration of activated sludge to reduce energy requirements at distributed reclaimed water plants: studies at bench and pilot scales**

Dotti F. Ramey, Junko Munakata-Marr and Tzahi Y. Cath\*

Hypoaerobic treatment in an SBR produces effluent quality equal to a standard aeration treatment with 27% less blower energy use.

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**Development and application of an improved protocol to characterize biofilms in biologically active drinking water filters**

Ahmed M. Elhadidy,\* Michele I. Van Dyke, Fei Chen, Sigrid Peldszus and Peter M. Huck

The objective was to develop and apply an improved, comprehensive biofilm characterization protocol for cellular and extracellular polymeric substances in drinking water biofilters.

**Lessons and guidance for the management of safe drinking water during extreme weather events**

Stuart J. Khan,\* Daniel Deere, Frederic D. L. Leusch, Andrew Humpage, Madeleine Jenkins, David Cunliffe, Shona K. Fitzgerald and Benjamin D. Stanford

Extreme weather events have presented significant challenges to drinking water quality managers in Australia.

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**Enhanced water recovery in the coal seam gas industry using a dual reverse osmosis system**

Dean Blair, Dominic T. Alexander, Sara J. Couperthwaite, Mariam Darestani and Graeme J. Millar\*

A robust method involving intermediate nanofiltration in a dual stage RO system to achieve high water recovery rates from coal seam water has been developed.

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**Removal of bacterial cells, antibiotic resistance genes and integrase genes by on-site hospital wastewater treatment plants: surveillance of treated hospital effluent quality**

Kenda Timraz, Yanghui Xiong, Hamed Al Qarni and Pei-Ying Hong\*

This study aims to evaluate the removal efficiency of microbial contaminants by wastewater treatment plants (WWTPs) operated on-site of two hospitals.

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**A comparative evaluation of community structure in full-scale digesters indicates that two-phase digesters exhibit greater microbial diversity than single-phase digesters**

A. L. Smith, T. Shimada and L. Raskin\*

Sequencing of full-scale, two-phase anaerobic digesters suggested that increased microbial community diversity improves process performance.

**Case study: the crude MCHM chemical spill investigation and recovery in West Virginia USA**

A. J. Whelton,\* L. McMillan, C. L.-R. Novy, K. D. White and X. Huang

Several recent chemical spills have caused large-scale drinking water contamination incidents in Canada and the USA.

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**Maximizing Coulombic recovery and solids reduction from primary sludge by controlling retention time and pH in a flat-plate microbial electrolysis cell**

Dongwon Ki,\* Prathap Parameswaran, Sudeep C. Papat, Bruce E. Rittmann and César I. Torres

Control of hydraulic retention time and pH of the anode chamber in a flat-plate microbial electrolysis cell can improve Coulombic recovery and sludge stabilization.

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**Microbial distribution and variation in produced water from separators to storage tanks of shale gas wells in Sichuan Basin, China**

Yimeng Zhang, Zhisheng Yu,\* Hongxun Zhang and Ian P. Thompson

Production facilities harbor diverse microorganisms including sulfidogenic bacteria, acid producers and fermenters, showing the potential need for effective microbial control during the production of shale gas.

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**Water treatment process evaluation of wildfire-affected sediment leachates**

Amanda K. Hohner,\* Leigh G. Terry, Eli B. Townsend, R. Scott Summers and Fernando L. Rosario-Ortiz\*

Re-suspension of post-fire sediment deposits challenge conventional water treatment processes during runoff events, impacting DBP formation. Treatment thresholds for a range of unit processes are established.

### **Decision-making scheme for disinfection by-product monitoring intended for small drinking water systems**

Stéphanie Guilherme, Caetano C. Dorea  
and Manuel J. Rodriguez\*

Trihalomethanes (THMs) and haloacetic acids (HAAs) are the most prevalent disinfection by-products (DBPs) in drinking water and their occurrence is regulated in several countries.

### **Correction: A mechanistic understanding of the degradation of trace organic contaminants by UV/hydrogen peroxide, UV/persulfate and UV/free chlorine for water reuse**

Wei Li, Tushar Jain, Kenneth Ishida, Christina K. Remucal and Haizhou Liu\*