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**Research highlights: functions of the drinking water microbiome – from treatment to tap**

C. Kimloi Gomez-Smith,\* David T. Tan  
and Danmeng Shuai

We highlight determinants and functions of the drinking water microbiome in water treatment processes, distribution system biofilms, and premise plumbing components.

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**Net-zero water management: achieving energy-positive municipal water supply**

James D. Englehardt,\* Tingting Wu, Frederick Bloetscher, Yang Deng, Piet du Pisani, Sebastian Eilert, Samir Elmir, Tianjiao Guo, Joseph Jacangelo, Mark LeChevallier, Harold Leverenz, Erika Mancha, Elizabeth Plater-Zyberk, Bahman Sheikh, Eva Steinle-Darling  
and George Tchobanoglous

Municipal water management can now be energy-positive and economical, through total water recycling.

**Gas-permeable hydrophobic tubular membranes for ammonia recovery in bio-electrochemical systems**

P. Kuntke,\* P. Zamora, M. Saakes, C. J. N. Buisman and H. V. M. Hamelers

Integration of a gas-permeable hydrophobic membrane in the cathode compartment of a bio-electrochemical system enables efficient ammonia recovery from wastewater.

**Diffusion layer characteristics for increasing the performance of activated carbon air cathodes in microbial fuel cells**

Xiaoyuan Zhang,\* Weihua He, Wulin Yang, Jia Liu, Qiuying Wang, Peng Liang, Xia Huang and Bruce E. Logan\*

Air cathode characteristics significantly affected power production of microbial fuel cells during wastewater treatment.

**Long-term performance of a 200 liter modularized microbial fuel cell system treating municipal wastewater: treatment, energy, and cost**

Zheng Ge and Zhen He\*

A modularized microbial fuel cell system can effectively treat primary effluent and use the produced energy to offset part of its energy consumption.

**Emerging investigators series: pyrolysis removes common microconstituents triclocarban, triclosan, and nonylphenol from biosolids**

J. J. Ross, D. H. Zitomer, T. R. Miller, C. A. Weirich and P. J. McNamara\*

Pyrolysis could be used as a biosolids processing step that reduces the amount of organic microconstituents discharged to the environment with residual biosolids.

**Reduced energy demand for municipal wastewater recovery using an anaerobic floating filter membrane bioreactor**

M. D. Seib,\* K. J. Berg and D. H. Zitomer

Unique anaerobic membrane bioreactor system achieves high organic removal with low energy requirements.

**Pretreatment of natural organic matter to control biological stability**

Mahdi Bazri and Madjid Mohseni\*

Impacts of UV/H<sub>2</sub>O<sub>2</sub> and alum coagulation on NOM molecular weight distribution and subsequent biostability of water were investigated.

**Electrochemical silver dissolution and recovery as a potential method to disinfect drinking water for underprivileged societies**

Jeffrey M. P. Parr and Younggy Kim\*

Limited access to disinfected drinking water is a critical challenge in developing countries. This new water disinfection method can be operated by a minimal amount of electric energy that can be supplied by bicycle generators or photovoltaic solar panels.

**N-Nitrosamine formation kinetics in wastewater effluents and surface waters**

Jinwei Zhang, David Hanigan, Paul Westerhoff and Pierre Herckes\*

N-Nitrosodimethylamine (NDMA) is a chloramination disinfection by-product (DBP) with an uncertain regulatory future.

**Cost-effectiveness and community impacts of two urine-collection programs in rural South Africa**

Elizabeth Tilley

The cost-effectiveness of two different urine-collection programs in South Africa are modelled over a range of parameters and are interpreted from the perspective of both the municipality and the community.

**Pee power urinal – microbial fuel cell technology field trials in the context of sanitation**

Ioannis Andrea Ieropoulos,\* Andrew Stinchcombe, Iwona Gajda, Samuel Forbes, Irene Merino-Jimenez, Grzegorz Pasternak, Daniel Sanchez-Herranz and John Greenman

This paper reports on the pee power urinal field trials, which are using microbial fuel cells for internal lighting.

**Nitrite accumulation in a denitrifying biocathode microbial fuel cell**

Varun Srinivasan, Jacob Weinrich and Caitlyn Butler\*

This study presents the conditions of nitrite accumulation in MFC biocathodes through batch experiments and derives kinetic parameters with an Activated Sludge Model with an integration of the Nernst–Monod model and Indirect Coupling of Electrons (ASM–NICE).

**A liter-scale microbial capacitive deionization system for the treatment of shale gas wastewater**

Casey Forrestal, Alexander Haeger, Louis Dankovich IV, Tzahi Y. Cath and Zhiyong Jason Ren\*

A liter-scale system showed real world potential for energy positive wastewater treatment and desalination.

### **Cyanobacterial management in full-scale water treatment and recycling processes: reactive dosing following intensive monitoring**

Arash Zamyadi,\* Rita K. Henderson, Richard Stuetz, Gayle Newcombe, Kelly Newtown and Brendan Gladman

Fate of cyanobacterial species within full-scale water treatment/recycling processes and real-time treatment adjustment using *in-situ* fluorescence measurement.

### **Bacterial production of transparent exopolymer particles during static and laboratory-based cross-flow experiments**

Tamar Jamieson, Amanda V. Ellis, Dmitriy A. Khodakov, Sergio Balzano, Deevesh A. Hemraj and Sophie C. Leterme\*

The aim of this paper was to provide novel insights into the biofouling mechanism of transparent exopolymer particles (TEP) production through the use of static and laboratory-based cross flow experiments.

### **Prediction of disinfection by-product formation in drinking water via fluorescence spectroscopy**

Benjamin F. Trueman,\* Sean A. MacIsaac, Amina K. Stoddart and Graham A. Gagnon

Fluorescence spectroscopy has potential applications for monitoring disinfection by-products (DBPs) during water treatment. This paper demonstrates the novel application of several statistical learning algorithms for fluorescence-based DBP prediction.

### **Functionalized three-dimensional (3D) graphene composite for high efficiency removal of mercury**

Shervin Kabiri, Diana N. H. Tran, Martin A. Cole and Dusan Losic\*

Tailored graphene composites with iron nanoparticles and silica microparticles for mercury removal in contaminated waters were prepared.

**Correction: Cost-effectiveness and community impacts of two urine-collection programs in rural South Africa**

Elizabeth Tilley