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**Research highlights: under-recognized precursors and sources for disinfection byproduct formation**

Tao Ye, Danmeng Shuai\* and David T. Tan

This Highlight article covers several unconventional precursors and sources for disinfection byproduct formation from recent studies.

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**Advances in anti-scale magnetic water treatment**

Adetunji Alabi, Matteo Chiesa, Corrado Garlisi and Giovanni Palmisano\*

Water magnetic treatment provides a clean solution to handle scaling concerns. This article reports on the mechanisms and effects associated with magnetic treatment.

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**Detection of trace arsenic in drinking water: challenges and opportunities for microfluidics**

Nevetha Yogarajah and Scott S. H. Tsai\*

Conception of a micro total analytical system ( $\mu$ TAS), capable of sample preparation, sample analysis, and signal acquisition, for portable trace arsenic detection.

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**The pore surface diffusion model as a tool for rapid screening of novel nanomaterial-enhanced hybrid ion-exchange media**

Grigoria Athanasaki, Laurie Sherrill and Kiril D. Hristovski\*

The primary goal of this study was to examine the feasibility of using Pore Surface Diffusion Model (PSDM) as a rapid screening tool to predict breakthrough curves of short bed columns packed with nanomaterial enhanced hybrid-ion exchange media.

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**Effects of estrone and organic carbon exposure on the transformation of estrone**

David T. Tan, William A. Arnold and Paige J. Novak\*

Multiple substrate utilization and feeding intervals affect the microbial transformation of estrone.

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**Formation of disinfection by-products during ballast water treatment with ozone, chlorine, and peracetic acid: influence of water quality parameters**

Amisha D. Shah, Zheng-Qian Liu, Elisabeth Salhi, Thomas Höfer, Barbara Werschkun and Urs von Gunten\*

Differences in water quality from freshwater to seawater alter disinfection by-product formation during disinfection of ballast waters.

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**Phosphorus recovery from urine and anaerobic digester filtrate: comparison of adsorption–precipitation with direct precipitation**

Jeremy A. O'Neal and Treavor H. Boyer\*

High phosphate recovery from urine via adsorption to hybrid anion exchange resin, resin regeneration, and chemical addition and precipitation.

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**Evaluation of optical surrogates for the characterization of DOM removal by coagulation**

Julie A. Korak,\* Fernando L. Rosario-Ortiz and R. Scott Summers

Fluorescence wavelength is relatively unimportant for online monitoring approaches that measure raw and clarified samples.

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**Hybrid pressure retarded osmosis–membrane distillation (PRO–MD) process for osmotic power and clean water generation**

Gang Han, Jian Zuo, Chunfeng Wan and Tai-Shung Chung\*

A hybrid pressure retarded osmosis–membrane distillation (PRO–MD) process for sustainable production of renewable osmotic power and clean water from various waters.

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**Relation between operating parameters and desalination performance of capacitive deionization with activated carbon electrodes**

Danyang Liu, Kuan Huang, Leijie Xie and Hao L. Tang\*

This work presents a novel attempt at using a statistical modeling approach to predict the desalination performance of CDI.

## **Observability of anammox activity in single-stage nitritation/anammox reactors using mass balances**

Sarina Schielke-Jenni, Kris Villez, Eberhard Morgenroth and Kai M. Udert\*

Theoretically, mass balances based on microbial kinetics allow the determination of the activity of anammox bacteria (AMX) and heterotrophic bacteria (HET). In practise, the variance of the resulting activities is too high.