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Open storm: a complete framework for sensing and control of urban watersheds

Matthew Bartos,* Brandon Wong and Branko Kerkez

Leveraging recent advances in technologies surrounding the *Internet of Things*, “smart” water systems are poised to transform water resources management by enabling ubiquitous real-time sensing and control.

PAPERS

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Emergency water treatment with ferrate(vi) in response to natural disasters

Junkui Cui, Lei Zheng and Yang Deng*

The frequency and magnitude of natural disasters (e.g. hurricanes) have increased globally over the past century.

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Emerging investigators series: comparing the inherent reactivity of often-overlooked aqueous chlorinating and brominating agents toward salicylic acid

Matthew A. Broadwater, Tyler L. Swanson and John D. Sivey*

Rates and selectivity of salicylic acid halogenation can be influenced by highly electrophilic species such as Cl_2 , BrCl , and BrOCl .

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Estimating rainfall-induced inflow and infiltration in a sanitary sewer system based on water quality modelling: which parameter to use?

Mingkai Zhang, Yanchen Liu,* Qian Dong, Yi Hong, Xia Huang, Hanchang Shi and Zhiguo Yuan

Rainfall-derived inflow and infiltration (RDII) of urban sanitary sewer systems poses serious challenges for public health and management issues.

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Towards the real-time monitoring of industrial wastewater treatment processes *via* photoelectrochemical oxygen demand measurements

Kimia Aghasadeghi, Melissa J. Larocque and David R. Latulippe*

Photoelectrochemical oxidation of different macromolecules was studied to investigate the potential of peCOD for use in industrial wastewater treatment.

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Influence of pressure main pumping frequency on sulfide formation rates in sanitary sewers

A. H. Shypanski, Z. Yuan and K. Sharma*

Controlling pumping frequency at sanitary pressure mains is an effective tool for reducing overall sulfide generation.

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Influence of nanoparticle inclusions on the performance of reverse osmosis membranes

Yifan Liu, Jian Tan, Woongchul Choi, Jui-Hung Hsu, Dong Suk Han, Arum Han, Ahmed Abdel-Wahab and Choongho Yu*

The performance of reverse osmosis membranes whose selective layers were modified and/or coated by nanomaterials were comparatively and systematically studied.

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Efficient adsorption, removal and recovery of phosphate and nitrate from water by a novel lanthanum(III)-Dowex M4195 polymeric ligand exchanger

Hongxia Du, Christie Y. K. Lung* and Tai-Chu Lau*

A novel polymeric ligand exchanger (PLE) can selectively remove phosphate and nitrate from water down to <0.1 ppm.

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Reverse osmosis brine treatment using direct contact membrane distillation (DCMD): effect of membrane characteristics on desalination performance and the wetting phenomenon

Zhongsen Yan, Haiyang Yang, Huarong Yu, Fangshu Qu,* Heng Liang, Bart Van der Bruggen and Guibai Li

PVDF membranes with different pore sizes were used to investigate effect of membrane properties on membrane flux and pore wetting in RO brine treatment by DCMD.

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Removal of heavy metal ions using a carboxylated graphene oxide-incorporated polyphenylsulfone nanofiltration membrane

A. K. Shukla, J. Alam,* M. Alhoshan, L. Arockiasamy Dass, F. A. A. Ali, M. M. R. U. Mishra and M. A. Ansari

We investigate the removal of heavy metal ions from synthetic contaminated water on a laboratory scale using a carboxylated-graphene oxide (GO)-incorporated polyphenylsulfone (PPSU) nanofiltration membrane (the so called PPSU/carboxylated-GO nanocomposite membrane).

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Significant energy savings by optimising membrane design in the multi-stage reverse osmosis wastewater treatment process

M. A. Al-Obaidi, C. Kara-Zaitri and I. M. Mujtaba*

The total energy consumption of the multi stage spiral wound RO process has continuously improved as a result of discovering the proper design parameters for each module that can save more energy besides keeping high removal of chlorophenol.

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FAMEs production from *Scenedesmus obliquus* in autotrophic, heterotrophic and mixotrophic cultures under different nitrogen conditions

Xiao-Fei Shen, Hao Hu, Lin-Lin Ma, Paul K. S. Lam, Shao-Kai Yan, Shou-Biao Zhou and Raymond Jianxiong Zeng*

This study investigated the growth and biodiesel production of *S. obliquus* from autotrophic, heterotrophic and mixotrophic cultures under different nitrogen conditions.