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Emerging investigators series: advances and challenges of graphitic carbon nitride as a visible-light-responsive photocatalyst for sustainable water purification

Qinmin Zheng, Hongchen Shen and Danmeng Shuai*

Graphitic carbon nitride (g-C₃N₄) is a promising visible-light-responsive photocatalyst for sustainable water purification.

1002

Life cycle assessment (LCA) of urban water infrastructure: emerging approaches to balance objectives and inform comprehensive decision-making

Diana M. Byrne, Hannah A. C. Lohman, Sherri M. Cook, Gregory M. Peters and Jeremy S. Guest*

This review describes the state of the art, identifies emerging opportunities, and develops a path forward for LCA to better address urban water system sustainability.

1015

Treatment of metallurgical industry wastewater for organic contaminant removal in China: status, challenges, and perspectives

Peng Wu, Lan Ying Jiang,* Zhen He and Yang Song

Technologies and processes dealing with organics in metal wastewaters are introduced, along with the latest standards, challenges and future trends.

COMMUNICATIONS

1032

Near real-time *N*-nitrosodimethylamine monitoring in potable water reuse *via* online high-performance liquid chromatography-photochemical reaction-chemiluminescence

Takahiro Fujioka* *et al.*

Near real-time monitoring of the concentration of *N*-nitrosodimethylamine (NDMA) in recycled wastewater was achieved by adapting a newly developed analytical technique—online high-performance liquid chromatography-photochemical reaction-chemiluminescence.

1037

Correlation between the pore resistance and water flux of the cellulose acetate membrane

Cheng Yin, Shuai Wang, Yongjing Zhang, Zhe Chen,* Zhidong Lin, Ping Fu and Lei Yao*

An inverse relationship between the pore resistance and water flux was found by theoretical calculation and confirmed by the corresponding experiment.

PAPERS

1042

Emerging investigators series: trihalomethane, dihaloacetonitrile, and total *N*-nitrosamine precursor adsorption by modified carbon nanotubes (CNTs) and CNT micropillars

Erin M. Needham, Justin R. Chimka, Michael De Volder and Julian L. Fairey*

Modified carbon nanotubes (CNTs) and CNT micropillars are shown to adsorb organic precursors of disinfection byproducts, most notably those of total *N*-nitrosamines.

1051

Estrone biodegradation in laboratory-scale systems designed for total nitrogen removal from wastewater

Kira N. Peterson, David T. Tan, Juan C. Bezares-Cruz and Paige J. Novak*

Effective estrone biodegradation occurred under anammox conditions, suggesting that low-energy nitrogen removal processes can also effectively remove estrone.

1061

Peracetic acid disinfection kinetics for combined sewer overflows: indicator organisms, antibiotic resistance genes, and microbial community

Alessia Eramo, William R. Morales Medina and Nicole L. Fahrenfeld*

Combined sewer overflows (CSOs) degrade water quality and end-of-pipe treatment is one potential solution for retrofitting this outdated infrastructure.

1073

An Integrated microbial electrolysis-anaerobic digestion process combined with pretreatment of wastewater solids to improve hydrogen production

Jeff R. Beegle and Abhijeet P. Borole*

This paper explores an integrated anaerobic digestion/microbial electrolysis cell process (ADMEC) with alkaline or thermal hydrolysis pretreatment methods to improve COD conversion to hydrogen gas.

1086

Doxycycline transformation and emergence of antibacterially active products during water disinfection with chlorine

Nicole L. Kennedy Neth, Clifford M. Carlin and Olya S. Keen*

This study identified transformation products of doxycycline that formed during chlorine disinfection and evaluated the antibacterial properties of the products.

1095

Impact of growth phases on photochemically produced reactive species in the extracellular matrix of algal cultivation systems

Raul Tenorio, Anna C. Fedders, Timothy J. Strathmann and Jeremy S. Guest*

Increasing levels of photochemically produced reactive species were observed in an algal cultivation system extracellular matrix under simulated sunlight throughout lag, exponential, early stationary, and late stationary growth phases.

1109

Fate and impacts of triclosan, sulfamethoxazole, and 17 β -estradiol during nutrient recovery via ion exchange and struvite precipitation

Yiran Tong, Patrick J. McNamara and Brooke K. Mayer*

Increasing emphasis on resource recovery from wastewater highlights the importance of capturing valuable products, e.g., nutrients such as nitrogen and phosphorus, while removing contaminants, e.g., organic micropollutants.

1120

Development and experimental validation of the composition and treatability of a new synthetic bathroom greywater (SynGrey)

Kyle A. Thompson, R. Scott Summers and Sherri M. Cook*

A new synthetic greywater—SynGrey—was developed that closely matches real bathroom greywater in composition and treatability.

1132

Effect of organic molecular weight distribution on membrane fouling in an ultrafiltration system with ozone oxidation from the perspective of interaction energy

Yiwen Tan, Tao Lin,* Wei Chen and Dongju Zhou

In this article, we have discussed the effect of MW distribution on membrane fouling and found the optimal ozone dosage via the XDLVO theory.

1143

Metallic ion leaching from heterogeneous catalysts: an overlooked effect in the study of catalytic ozonation processes

Wenwen Yang, Bernhard Vogler, Yu Lei* and Tingting Wu*

The stability of the solid catalysts and the effects of the leached metal ions must be carefully examined in the study of heterogeneous catalytic ozonation.

1152

Biochemical methane potential assays and anaerobic digester bioaugmentation using freeze dried biomass

Ujwal Bhattad, Kaushik Venkiteshwaran,* James S. Maki and Daniel H. Zitomer

Bioaugmentation using freeze-dried biomass can improve anaerobic digester recovery after toxicant exposure and can be used for standard laboratory testing.

1162

Percarbonate oxidation of landfill leachates towards removal of ultraviolet quenchers

Syed Md Iskander, John T. Novak, Brian Brazil and Zhen He*

Sodium percarbonate can effectively reduce UV absorbance and UV quenchers in landfill leachates with potentially low cost per organic removal.

RETRACTION

1171

Retraction: The feasibility of char and bio-oil production from pyrolysis of pit latrine sludge

Tom Bond,* Queenie Tse, Clementine L. Chambon, Paul Fennell, Geoff D. Fowler and Michael R. Templeton