

NEWS

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1735

**Environmental digest**

Read the latest environmental news including:

Recent legislation

Environmental quality

Chemical hazards

Public and occupational health

Research activity

EDITORIAL

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1743

**Emerging Investigators themed issue 2012**

David Cwiertny and Tamar Kohn

David Cwiertny and Tamar Kohn introduce this themed issue, Emerging Investigators 2012.

1745

**Emerging investigators contributors 2012**

*Journal of Environmental Monitoring* profiles the contributors to the Emerging Investigators 2012 issue.

CRITICAL REVIEWS

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1754

**Potential impacts of disinfection processes on elimination and deactivation of antibiotic resistance genes during water and wastewater treatment**

Michael C. Dodd\*

Critical review of available data indicates disinfection processes could play an important role in mitigating dissemination of antibiotic resistance genes.

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1772

**Arsenic mobilization and attenuation by mineral–water interactions: implications for managed aquifer recharge**

Chelsea W. Neil, Y. Jeffrey Yang and Young-Shin Jun\*

A critical review of the potential impact of managed aquifer recharge on mineral–water interactions responsible for arsenic mobilization in groundwater.

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PAPERS

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1789

**Oxidation of Cr<sup>III</sup> to Cr<sup>VI</sup> during chlorination of drinking water**

Dana R. Lindsay, Kevin J. Farley and Richard F. Carbonaro\*

Production of Cr<sup>VI</sup> was monitored in distilled deionized water and NYC tap water dosed initially with three different forms of Cr<sup>III</sup> and supplemented with sodium hypochlorite to increase free chlorine residual.

1798

**Fluvial transport and surface enrichment of arsenic in semi-arid mining regions: examples from the Mojave Desert, California**

Christopher S. Kim,\* David H. Stack and James J. Rytuba

Fluvial transport of arsenic in contaminated mine tailings is dominated by episodic precipitation events, featuring exponential decay with distance.

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1814

**Determination of contaminant levels and remediation efficacy in groundwater at a former *in situ* recovery uranium mine**

Thomas Borch,\* Nicholas Roche and Thomas E. Johnson\*

One of the main environmental concerns with *in situ* uranium mining is the potential for groundwater contamination.

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1824

**Use of real-time sensors to characterise human exposures to combustion related pollutants**

Juana Maria Delgado-Saborit\*

This study presents real-time exposures to BC and NO<sub>2</sub>, identifies activities and microenvironments contributing to peak exposures and assesses the degree of agreement between concentrations measured at the personal level with concentrations measured at the central site.

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1838

**Pyrethroid insecticides in bed sediments from urban and agricultural streams across the United States**

Michelle L. Hladik\* and Kathryn M. Kuivila

Pyrethroid insecticides were measured in bed sediments collected from 36 streams across the United States.

1846

**Iodide-assisted total lead measurement and determination of different lead fractions in drinking water samples**

Yuanyuan Zhang, Ding-Quan Ng and Yi-Pin Lin\*

A new method for accurate measurement of total lead and differentiation of different lead species in drinking water is developed.

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1853

**Effects of adsorption onto silica sand particles on the hydrolysis of tetracycline antibiotics**

Hyun-Joong Kang, Mi-Young Lim and Jung-Hwan Kwon\*

Due to high usage of tetracycline antibiotics, concerns have been raised about their environmental fate.

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1860

**Comparative DFT study of inner-sphere As(III) complexes on hydrated  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>(0001) surface models**

Christoffer J. Goffinet and Sara E. Mason\*

Electronic structure reveals delocalization in As(III)/hematite surface complexes formed *via* true surface functional groups as opposed to ligand functional groups.

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1872

**Characterization and optimization of an online system for the simultaneous measurement of atmospheric water-soluble constituents in the gas and particle phases**

Milos Z. Markovic, Trevor C. VandenBoer and Jennifer G. Murphy\*

Characterization of accuracy and time response of the AIM-IC for measurements of water-soluble inorganic composition of PM<sub>2.5</sub> and precursor gases.

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1885

**Effects of natural organic matter type and concentration on the aggregation of citrate-stabilized gold nanoparticles**

Jeffrey A. Nason,\* Shannon A. McDowell  
and Ty W. Callahan

Natural organic matter type and concentration are important factors controlling the colloidal stability of engineered nanoparticles in aqueous systems.

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1893

**Monitoring bacterial community structure and variability in time scale in full-scale anaerobic digesters**

Sang-Hoon Lee, Hyun-Jin Kang, Young Haeng Lee,  
Taek Jun Lee, Keumsuk Han, Youngjun Choi  
and Hee-Deung Park\*

The present study demonstrated that the bacterial communities within digesters were more similar than those belonging to other digesters, demonstrating a patchiness of the digesters in the distribution of bacterial population.

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1906

**Evaluation of rural wastewater treatment processes in a county of eastern China**

Hui-Yu Dong, Zhi-Min Qiang,\* Wei-Dong Wang  
and Hui Jin

This study comparatively evaluated the performances of four decentralized and one centralized rural wastewater treatment processes at a county level in eastern China.

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1914

**Preparation and measurement methods for studying nanoparticle aggregate surface chemistry**

Christopher Szakal,\* James A. McCarthy,  
Melissa S. Ugelow, Andrew R. Konicek, Kacie Louis,  
Benjamin Yezer, Andrew A. Herzing, Robert J. Hamers  
and R. David Holbrook

Nanoparticles are controllably dispensed into aggregates, and the resulting surface chemistries are probed by mass spectrometry.

1926

**Apportioning variability of polycyclic aromatic hydrocarbons (PAHs) and chlordanes in indoor and outdoor environments**

Xianlei Zhu and Chunrong Jia\*

Variability of semi-volatile organic compounds is partitioned to between-city, between-tract, between-residence and seasonal variation, as well as measurement uncertainty.

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1935

**Chlorinated and brominated dibenzo-*p*-dioxins and dibenzofurans in surface sediment from Taihu Lake, China**

Lin Zhou, Huiru Li, Zhiqiang Yu,\* Man Ren, Xiangying Zeng, Ping'an Peng,\* Guoying Sheng and Jiamo Fu

The sedimentary concentrations of PCDD/Fs and PBDD/Fs in three typical drinking water source areas of Taihu Lake were all at background levels internationally.

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1943

**Spatial, temporal, and speciation variations of heavy metals in sediments of Nan'ao Island, a representative mariculture base in Guangdong coast, China**

Yangguang Gu, Yufeng Yang,\* Qin Lin, Qusheng Li, Zenghuan Wang and Xunuo Wang

Heavy metal spatio-temporal change and speciation in sediments was studied for the first time in Basha Bay, Nan'ao Island.

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1951

**Regulation of the dissolved phosphate concentration of a mountainous stream, Kitakyushu, Southwestern Japan**

Masaaki Koga and Kazuhisa Yoshimura\*

The phosphate concentration in surface streams is expected to be very helpful in diagnosing the condition of forests using mountainous stream waters and evaluating the possibility of forests as an effective sink for CO<sub>2</sub>.

1959

**Critical analysis of the potential of *Ipomoea nil* 'Scarlet O'Hara' for ozone biomonitoring in the sub-tropics**

Maurício Lamano Ferreira, Jéssica Bordotti Nobre Esposito, Silvia Ribeiro de Souza and Marisa Domingos\*

Antioxidant responses of *I. nil* 'Scarlet O'Hara' to the highly oxidative environment decrease its potential for quantitative O<sub>3</sub> bioindicator in the sub-tropics.

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1968

**Hygienic guidance values for wipe sampling of antineoplastic drugs in Swedish hospitals**

Maria Hedmer\* and Gertrud Wohlfart

Monitoring of surface contamination by collection of wipe samples is a useful method for assessing occupational exposure to antineoplastic drugs.

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1976

**Indoor air in schools and lung function of Austrian school children**

Peter Wallner, Michael Kundi, Hanns Moshhammer, Kathrin Piegler, Philipp Hohenblum, Sigrid Scharf, Marina Fröhlich, Bernhard Damberger, Peter Tappler and Hans-Peter Hutter\*

The Children's Environment and Health Action Plan for Europe (CEHAPE) of WHO focuses (*inter alia*) on improving indoor environments where children spend most of their time.

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1983

**Removal of organic toxic chemicals using the spent mushroom compost of *Ganoderma lucidum***

Chien-Sen Liao, Shaw-Ying Yuan, Bau-Huei Hung and Bea-Ven Chang\*

The removal of the organic toxic chemicals di-*n*-butyl phthalate (DBP), di-2-ethyl hexyl phthalate (DEHP), nonylphenol (NP), and bisphenol-A (BPA) by laccase obtained from the spent mushroom compost (SMC) of the white rot fungi, *Ganoderma lucidum*, was investigated.

## PAPERS

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1989

**Investigations of mercury concentrations in walleye and other fish in the Athabasca River ecosystem with increasing oil sands developments**

Marlene S. Evans\* and André Talbot

Investigations of historic records provide no evidence of increasing mercury concentrations in fish in the Alberta oil sands areas.