

**Cover**

See William R. Rittenour *et al.*, pp. 33–43.

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Kimberly S. Clough-Thomas is acknowledged for the graphic design of the image and images of fungal conidia were kindly supplied by the Centers for Disease Control and Prevention Public Health Image Library.

EDITORIAL

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**Off to a flying start**

Frank Wania

Frank Wania, Chair of the Editorial Board reflects on *Environmental Science: Processes & Impacts's* first year.



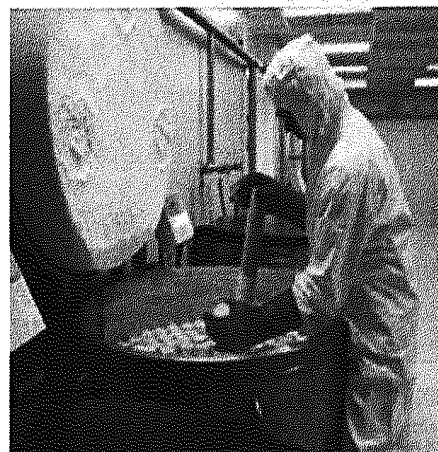
PERSPECTIVE

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**Environmental specimen banks as a resource for mercury and mercury isotope research in marine ecosystems**

Rusty D. Day,\* Paul R. Becker, Olivier F. X. Donard, Rebecca S. Pugh and Stephen A. Wise

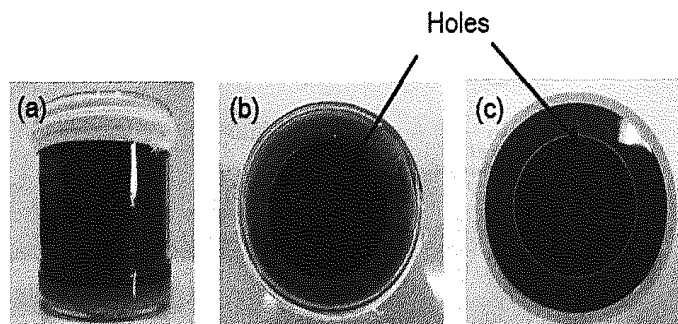
Cryogenic facilities in the NIST Marine Environmental Specimen Bank, Hollings Marine Laboratory, Charleston, SC, USA.



## Monitoring low-radioactivity caesium in Fukushima waters

Akiko Kitajima, Hiroshi Ogawa, Takeshi Kobayashi, Tatsuya Kawasaki, Yoshiaki Kawatsu, Tohru Kawamoto and Hisashi Tanaka\*

A new monitoring system has been established to assess low-level radioactive caesium in Fukushima waters directly using caesium adsorbents: plastic containers, U8 containers, and a germanium (Ge) detector container packed with nanoparticle-Prussian blue (PB) immobilized on a polymer.

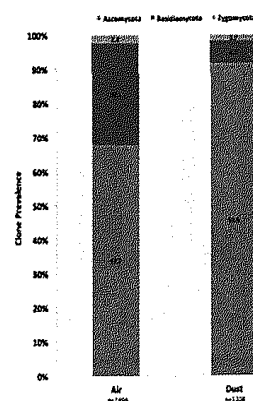


## PAPERS

## Internal transcribed spacer rRNA gene sequencing analysis of fungal diversity in Kansas City indoor environments

W. R. Rittenour, C. E. Ciaccio, C. S. Barnes, M. L. Kashon, A. R. Lemons, D. H. Beezhold and B. J. Green\*

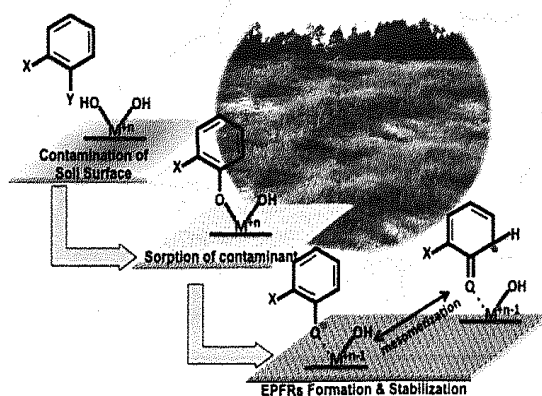
The results of this ITS sequencing study demonstrate a much broader diversity of Ascomycota and Basidiomycota communities in indoor Kansas City environments than previously estimated using traditional methods of assessment.



## Assessment of environmentally persistent free radicals in soils and sediments from three Superfund sites

Albert Leo N. dela Cruz,\* Robert L. Cook, Barry Dellinger, Slawomir M. Lomnicki, Kirby C. Donnelly, Matthew A. Kelley and David Cosgriff

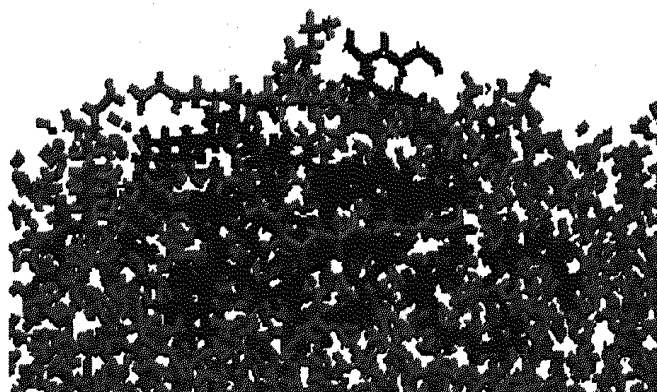
The presence of emerging pollutant, EPFRs, in contaminated soils from Superfund sites will provide additional insights on mitigating environmental health impact from sorption of organic pollutant to soil matrix.

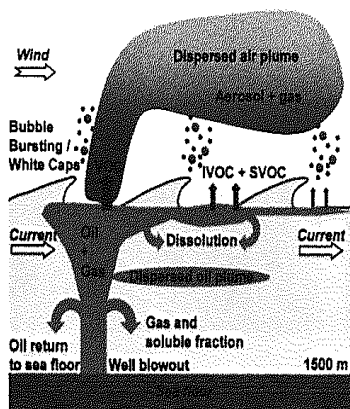


## Bubble bursting as an aerosol generation mechanism during an oil spill in the deep-sea environment: molecular dynamics simulations of oil alkanes and dispersants in atmospheric air/salt water interfaces

Thilanga P. Liyana-Arachchi, Zenghui Zhang, Franz S. Ehrenhauser, Paria Avij, Kalliat T. Valsaraj and Francisco R. Hung\*

Semi-volatile oil alkanes and surfactants adsorb at the surface of bubbles/droplets, and can be ejected to the atmosphere by whitecaps.

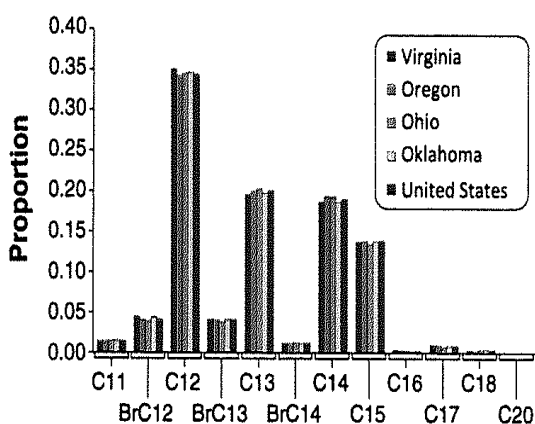




**Bubble bursting as an aerosol generation mechanism during an oil spill in the deep-sea environment: laboratory experimental demonstration of the transport pathway**

Franz S. Ehrenhauser, Paria Avij, Xin Shu, Victoria Dugas, Isaiah Woodson, Thilanga Liyana-Arachchi, Zenghui Zhang, Francisco R. Hung and Kalliat T. Valsaraj\*

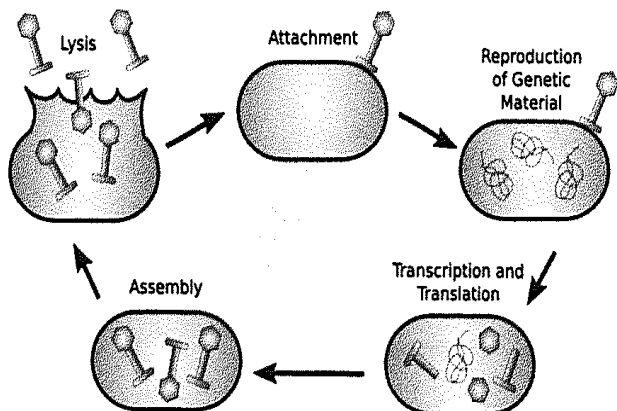
Aerosolization via bursting bubbles enables the transport of non-volatile oil spill matter into the atmosphere.



**Estimating fatty alcohol contributions to the environment from laundry and personal care products using a market forensics approach**

Stephen M. Mudge\* and Paul C. DeLeo

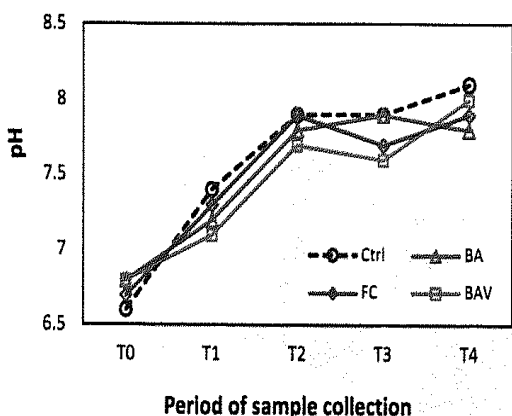
Fatty alcohol-based surfactants are widely used in detergents and personal care products; they are typically disposed of down-the-drain and are degraded or removed during wastewater treatment.



**The long-term effects of phage concentration on the inhibition of planktonic bacterial cultures**

Thomas O. Worley-Morse, Lucy Zhang and Claudia K. Gunsch\*

The long-term effects of phage concentration on bacterial growth inhibition were determined for nine unique phages. Four of the nine phages had linear relationships between long-term growth inhibition and phage concentration.



**Effects of sugarcane waste-products on Cd and Zn fractionation and their uptake by sugarcane (*Saccharum officinarum* L.)**

Pensiri Akkajit, Thomas DeSutter and Chantra Tongcumpou\*

Waste-products from ethanol production applied to sugarcane grown in high Cd contaminated soil decreased Cd in the BCR1 + 2 fractions of the soil.

**Progress on understanding spatial and temporal variability of PM<sub>2.5</sub> and its components in the Detroit Exposure and Aerosol Research Study (DEARS)**

Carvin Stevens,\* Ron Williams and Paul Jones

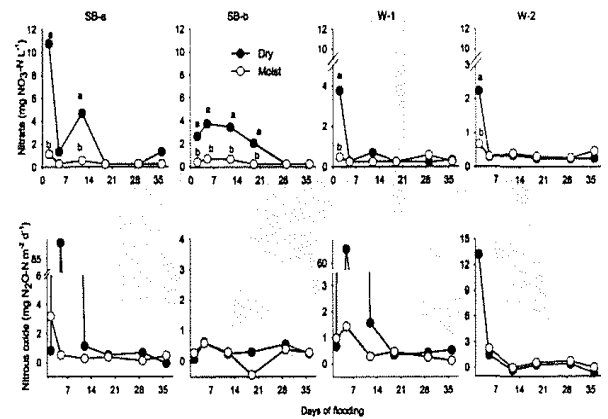
Spatial and temporal relationship of central site measures to indoor, outdoor, and personal exposure of the components of ambient PM<sub>2.5</sub> (<http://www.epa.gov/DEARS/>).



**A mesocosm study of the effects of wet–dry cycles on nutrient release from constructed wetlands in agricultural landscapes**

Allyson S. Smith and Pierre-Andre Jacinthe\*

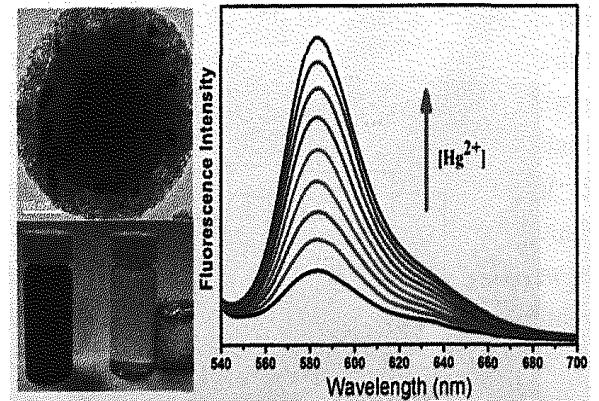
Given the projection that wet–dry periods will be more frequent in the US Midwest, a study was conducted to understand the impact of these hydro-climatic alterations on nutrient dynamics in wetlands constructed on former croplands in the region.



**Magnetically recoverable fluorescence chemosensor for the adsorption and selective detection of Hg<sup>2+</sup> in water**

Qiang Lv, Gang Li,\* Zhuhong Cheng, Hong Lu and Xiaoxia Gao

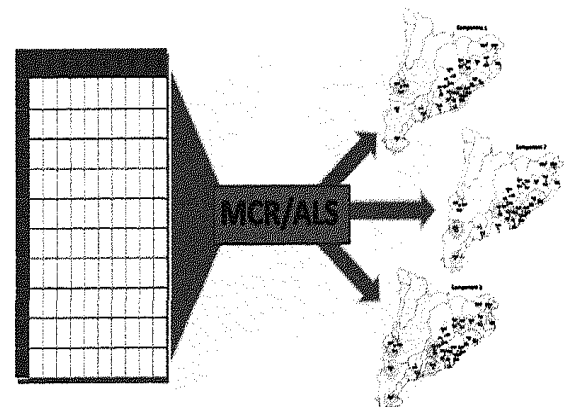
A magnetically recoverable fluorescence chemosensor exhibits high sensitivity, selectivity and regenerability for detection of Hg<sup>2+</sup> ions in water.



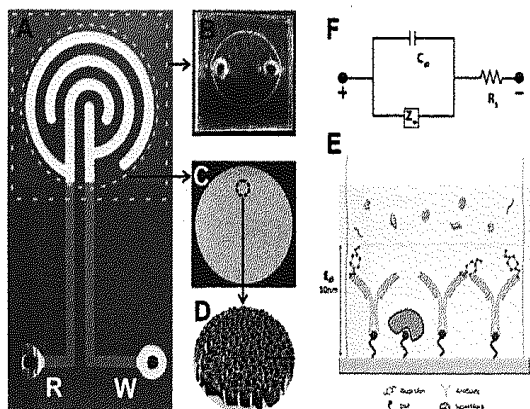
**Chemometric modeling of organic contaminant sources in surface waters of a mediterranean river basin**

Alejandro G. García-Reiriz,\* Alejandro C. Olivieri, Elisabeth Teixidó, Antoni Ginebreda and Romà Tauler

Chemometric methods are applied to the analysis and interpretation of large multivariate datasets obtained in environmental monitoring studies.



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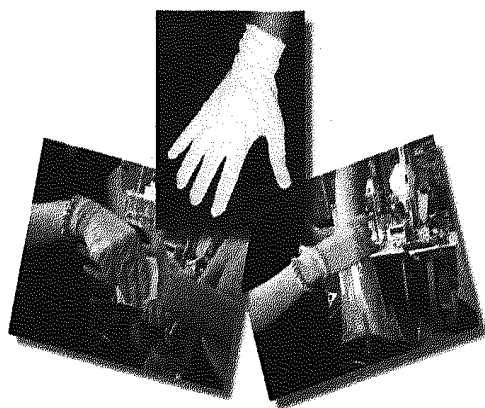


### Nanochannel-based electrochemical sensor for the detection of pharmaceutical contaminants in water

Vinay J. Nagaraj, Michael Jacobs, Krishna Mohan Vattipalli, Venkata Praveen Annam and Shalini Prasad\*

Effective real-time monitoring is the key to understanding and tackling the issue of pharmaceutical contamination of water.

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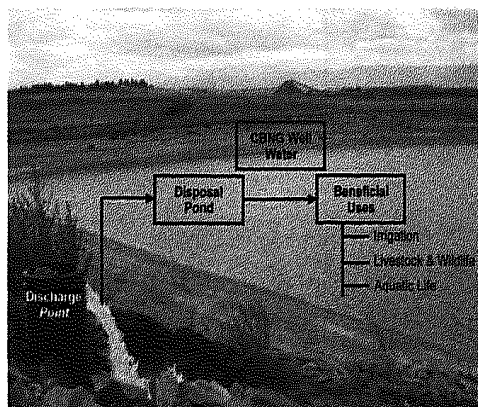


### A preliminary comparison of three dermal exposure sampling methods: rinses, wipes and cotton gloves

Melanie Gorman Ng, Stan de Poot, Kaspar Schmid, Hilary Cowie, Sean Semple and Martie van Tongeren\*

Three dermal exposure assessment methods were compared in side-by-side laboratory exposure simulations to study the effect of sampling method on measurement results. The paper also discusses the possibility of developing conversion methods to allow pooling of data taken using different methods.

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### Potential beneficial uses of coalbed natural gas (CBNG) water

K. J. Reddy,\* Ashley J. Whitman and Andrew R. Kniss

We monitored changes in coalbed natural gas well water quality over a period of nine years to find beneficial uses.

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### Field-testing a new directional passive air sampler for fugitive dust in a complex industrial source environment

E. J. S. Ferranti, M. Fryer, A. J. Sweetman, M. A. Solera Garcia and R. J. Timmis\*

A Directional Passive Air Sampler (DPAS) was field-tested at a large steelworks. It could identify different fugitive dust sources around a specific processing operation, and also measure a reduction from these sources following new dust controls.