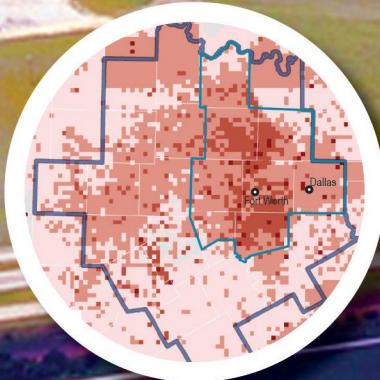


# ENVIRONMENTAL Science & Technology

July 7, 2015  
Volume 49  
Number 13  
[pubs.acs.org/est](http://pubs.acs.org/est)



## Measuring oil and gas methane emissions in the Barnett Shale



ACS Publications  
Most Trusted. Most Cited. Most Read.

[www.acs.org](http://www.acs.org)

July 7, 2015: Vol. 49, Iss. 13

## Content

### 1. We Came, We Saw, We Listened

David Sedlak

*Environmental Science & Technology* 2015 49 (13), 7513-7514

DOI: 10.1021/acs.est.5b02889

### 2. Life Cycle Thinking, Measurement and Management for Food System Sustainability

Nathan Pelletier

*Environmental Science & Technology* 2015 49 (13), 7515-7519

DOI: 10.1021/acs.est.5b00441

### 3. A Continuous Need To Determine What We Should Protect In Ecological Risk Assessments

Yuichi Iwasaki and William H. Clements

*Environmental Science & Technology* 2015 49 (13), 7520-7521

DOI: 10.1021/acs.est.5b01804

### 4. Reforming the Mode of Industrial Pollution Control through Interdisciplinary Collaboration

Sheng Wang and Phil Wu

*Environmental Science & Technology* 2015 49 (13), 7522-7523

DOI: 10.1021/acs.est.5b02021

### 5. Using Multi-Scale Measurements to Improve Methane Emission Estimates from Oil and Gas Operations in the Barnett Shale Region, Texas

Robert Harriss, Ramón A. Alvarez, David Lyon, Daniel Zavala-Araiza, Drew Nelson, and Steven P. Hamburg

*Environmental Science & Technology* 2015 49 (13), 7524-7526

DOI: 10.1021/acs.est.5b02305

### 6. Viewpoint: Why Disclosure Matters

Naomi Oreskes, Daniel Carlat, Michael E. Mann, Paul D. Thacker, and Frederick S. vom Saal

*Environmental Science & Technology* 2015 49 (13), 7527-7528

DOI: 10.1021/acs.est.5b02726

### 7. Life Cycle Payback Estimates of Nanosilver Enabled Textiles under Different Silver Loading, Release, And Laundering Scenarios Informed by Literature Review

Andrea L. Hicks, Leanne M. Gilbertson, Jamila S. Yamani, Thomas L. Theis, and Julie B. Zimmerman

*Environmental Science & Technology* 2015 49 (13), 7529-7542

DOI: 10.1021/acs.est.5b01176

### 8. Industry-Cost-Curve Approach for Modeling the Environmental Impact of Introducing New Technologies in Life Cycle Assessment

Arne Kätelhön, Niklas von der Assen, Sangwon Suh, Johannes Jung, and André Bardow

*Environmental Science & Technology* 2015 49 (13), 7543-7551

DOI: 10.1021/es5056512

### 9. Beyond User Acceptance: A Legitimacy Framework for Potable Water Reuse in California

Sasha R. Harris-Lovett, Christian Binz, David L. Sedlak, Michael Kiparsky, and Bernhard Truffer

*Environmental Science & Technology* 2015 49 (13), 7552-7561

DOI: 10.1021/acs.est.5b00504

**10. Identifying/Quantifying Environmental Trade-offs Inherent in GHG Reduction Strategies for Coal-Fired Power**

Greg Schivley, Wesley W. Ingwersen, Joe Marriott, Troy R. Hawkins, and Timothy J. Skone  
*Environmental Science & Technology* 2015 49 (13), 7562-7570

DOI: 10.1021/acs.est.5b01118

**11. Opportunities for Decarbonizing Existing U.S. Coal-Fired Power Plants via CO<sub>2</sub> Capture, Utilization and Storage**

Haibo Zhai, Yang Ou, and Edward S. Rubin  
*Environmental Science & Technology* 2015 49 (13), 7571-7579

DOI: 10.1021/acs.est.5b01120

**12. U.S. Air Quality and Health Benefits from Avoided Climate Change under Greenhouse Gas Mitigation**

Fernando Garcia-Menendez, Rebecca K. Saari, Erwan Monier, and Noelle E. Selin  
*Environmental Science & Technology* 2015 49 (13), 7580-7588

DOI: 10.1021/acs.est.5b01324

**13. Perchlorate in Lake Water from an Operating Diamond Mine**

Lianna J. D. Smith, Carol J. Ptacek, David W. Blowes, Laura G. Groza, and Michael C. Moncur  
*Environmental Science & Technology* 2015 49 (13), 7589-7596

DOI: 10.1021/acs.est.5b01111

**14. Environmental Monitoring: Inferring the Diatom Index from Next-Generation Sequencing Data**

Joana Amorim Visco, Laure Apothéloz-Perret-Gentil, Arielle Cordonier, Philippe Esling, Loïc Pillet, and Jan Pawłowski  
*Environmental Science & Technology* 2015 49 (13), 7597-7605

DOI: 10.1021/es506158m

**15. Influence of Cladophora–Quagga Mussel Assemblages on Nearshore Methylmercury Production in Lake Michigan**

Ryan F. Lepak, David P. Krabbenhoft, Jacob M. Ogorek, Michael T. Tate, Harvey A. Bootsma, and James P. Hurley  
*Environmental Science & Technology* 2015 49 (13), 7606-7613

DOI: 10.1021/es506253v

**16. Organic Carbon Burial in Lakes and Reservoirs of the Conterminous United States**

David W. Clow, Sarah M. Stackpoole, Kristine L. Verdin, David E. Butman, Zhiliang Zhu, David P. Krabbenhoft, and Robert G. Striegl  
*Environmental Science & Technology* 2015 49 (13), 7614-7622

DOI: 10.1021/acs.est.5b00373

**17. Mercury Stable Isotopes in Ornithogenic Deposits As Tracers of Historical Cycling of Mercury in Ross Sea, Antarctica**

Wang Zheng, Zhouqing Xie, and Bridget A. Bergquist  
*Environmental Science & Technology* 2015 49 (13), 7623-7632

DOI: 10.1021/acs.est.5b00523

**18. Using Sulfur Stable Isotopes to Understand Feeding Behavior and Selenium Concentrations in Yellow Perch (*Perca flavescens*)**

Dominic E. Ponton and Landis Hare  
*Environmental Science & Technology* 2015 49 (13), 7633-7640

DOI: 10.1021/acs.est.5b00718

**19. Ice Core Perspective on Mercury Pollution during the Past 600 Years**

Samuel A. Beal, Erich C. Osterberg, Christian M. Zdanowicz, and David A. Fisher  
*Environmental Science & Technology* 2015 49 (13), 7641-7647

DOI: 10.1021/acs.est.5b01033

**20. Physical and Biological Release of Poly- and Perfluoroalkyl Substances (PFASs) from Municipal Solid Waste in Anaerobic Model Landfill Reactors**

B. McKay Allred, Johnsie R. Lang, Morton A. Barlaz, and Jennifer A. Field  
*Environmental Science & Technology* 2015 49 (13), 7648-7656  
DOI: 10.1021/acs.est.5b01040

**21. Source Apportionment of Polycyclic Aromatic Hydrocarbons in Central European Soils with Compound-Specific Triple Isotopes ( $\delta^{13}\text{C}$ ,  $\Delta^{14}\text{C}$ , and  $\delta^{2}\text{H}$ )**

Carme Bosch, August Andersson, Martin Kruså, Cecilia Bandh, Ivana Hovorková, Jana Klánová, Timothy D. J. Knowles, Richard D. Pancost, Richard P. Evershed, and Örjan Gustafsson  
*Environmental Science & Technology* 2015 49 (13), 7657-7665  
DOI: 10.1021/acs.est.5b01190

**22. Aerobic Biotransformation of Fluorotelomer Thioether Amido Sulfonate (Lodyne) in AFFF-Amended Microcosms**

Katie C. Harding-Marjanovic, Erika F. Houtz, Shan Yi, Jennifer A. Field, David L. Sedlak, and Lisa Alvarez-Cohen  
*Environmental Science & Technology* 2015 49 (13), 7666-7674  
DOI: 10.1021/acs.est.5b01219

**23. Bisphenol A in Solid Waste Materials, Leachate Water, and Air Particles from Norwegian Waste-Handling Facilities: Presence and Partitioning Behavior**

Nicolas Morin, Hans Peter H. Arp, and Sarah E. Hale  
*Environmental Science & Technology* 2015 49 (13), 7675-7683  
DOI: 10.1021/acs.est.5b01307

**24. High-Resolution Dynamics of Microbial Communities during Dissimilatory Selenate Reduction in Anoxic Soil**

Ronald R. Navarro, Tomo Aoyagi, Makoto Kimura, Hideomi Itoh, Yuya Sato, Yoshitomo Kikuchi, Atsushi Ogata, and Tomoyuki Hori  
*Environmental Science & Technology* 2015 49 (13), 7684-7691  
DOI: 10.1021/es505210p

**25. Manganese-Cycling Microbial Communities Inside Deep-Sea Manganese Nodules**

Marco Blöthe, Anna Wegorzewski, Cornelia Müller, Frank Simon, Thomas Kuhn, and Axel Schippers  
*Environmental Science & Technology* 2015 49 (13), 7692-7700  
DOI: 10.1021/es504930v

**26. Effect of Phospholipid on Pyrite Oxidation and Microbial Communities under Simulated Acid Mine Drainage (AMD) Conditions**

Andro-Marc Pierre Louis, Hui Yu, Samantha L. Shumlas, Benoit Van Aken, Martin A. A. Schoonen, and Daniel R. Strongin  
*Environmental Science & Technology* 2015 49 (13), 7701-7708  
DOI: 10.1021/es505374g

**27. Relationship between Extracellular Low-Molecular-Weight Thiols and Mercury Species in Natural Lake Periphytic Biofilms**

Maxime Leclerc, Dolors Planas, and Marc Amyot  
*Environmental Science & Technology* 2015 49 (13), 7709-7716  
DOI: 10.1021/es505952x

**28. Atmospheric Sink of (E)-3-Hexen-1-ol, (Z)-3-Hepten-1-ol, and (Z)-3-Octen-1-ol: Rate Coefficients and Mechanisms of the OH-Radical Initiated Degradation**

Rodrigo G. Gibilisco, María B. Blanco, Iustinian Bejan, Ian Barnes, Peter Wiesen, and Mariano A. Teruel  
*Environmental Science & Technology* 2015 49 (13), 7717-7725  
DOI: 10.1021/es506125c

**29. Mechanism of Arsenic Adsorption on Magnetite Nanoparticles from Water: Thermodynamic and Spectroscopic Studies**

Cheng-Hua Liu, Ya-Hui Chuang, Tsan-Yao Chen, Yuan Tian, Hui Li, Ming-Kuang Wang, and Wei Zhang

**30. Bidirectional Flux of Methyl Vinyl Ketone and Methacrolein in Trees with Different Isoprenoid Emission under Realistic Ambient Concentrations**

Silvano Fares, Elena Paoletti, Francesco Loreto, and Federico Brilli  
*Environmental Science & Technology* 2015 49 (13), 7735-7742  
DOI: 10.1021/acs.est.5b00673

**31. High Methylmercury in Arctic and Subarctic Ponds is Related to Nutrient Levels in the Warming Eastern Canadian Arctic**

Gwyneth A. MacMillan, Catherine Girard, John Chételat, Isabelle Laurion, and Marc Amyot  
*Environmental Science & Technology* 2015 49 (13), 7743-7753  
DOI: 10.1021/acs.est.5b00763

**32. Highly Oxidized Multifunctional Organic Compounds Observed in Tropospheric Particles: A Field and Laboratory Study**

Anke Mutzel, Laurent Poulain, Torsten Berndt, Yoshiteru Iinuma, Maria Rodigast, Olaf Böge, Stefanie Richters, Gerald Spindler, Mikko Sipilä, Tuija Jokinen, Markku Kulmala, and Hartmut Herrmann  
*Environmental Science & Technology* 2015 49 (13), 7754-7761  
DOI: 10.1021/acs.est.5b00885

**33. Methylmercury Bioaccumulation in Stream Food Webs Declines with Increasing Primary Production**

David M. Walters, David F. Raikow, Chad R. Hammerschmidt, Molly G. Mehling, Amanda Kovach, and James T. Oris  
*Environmental Science & Technology* 2015 49 (13), 7762-7769  
DOI: 10.1021/acs.est.5b00911

**34. Neutral Poly/Per-Fluoroalkyl Substances in Air from the Atlantic to the Southern Ocean and in Antarctic Snow**

Zhen Wang, Zhiyong Xie, Wenying Mi, Axel Möller, Hendrik Wolschke, and Ralf Ebinghaus  
*Environmental Science & Technology* 2015 49 (13), 7770-7775  
DOI: 10.1021/acs.est.5b00920

**35. Intimate Coupling of Photocatalysis and Biodegradation for Degrading Phenol Using Different Light Types: Visible Light vs UV Light**

Dandan Zhou, Zhengxue Xu, Shanshan Dong, Mingxin Huo, Shuangshi Dong, Xiadi Tian, Bin Cui, Houfeng Xiong, Tingting Li, and Dongmei Ma  
*Environmental Science & Technology* 2015 49 (13), 7776-7783  
DOI: 10.1021/acs.est.5b00989

**36. Enhanced Photoreduction of Nitro-aromatic Compounds by Hydrated Electrons Derived from Indole on Natural Montmorillonite**

Haoting Tian, Yong Guo, Bo Pan, Cheng Gu, Hui Li, and Stephen A. Boyd  
*Environmental Science & Technology* 2015 49 (13), 7784-7792  
DOI: 10.1021/acs.est.5b01026

**37. Formation of Light Absorbing Soluble Secondary Organics and Insoluble Polymeric Particles from the Dark Reaction of Catechol and Guaiacol with Fe(III)**

Samantha Slikboer, Lindsay Grandy, Sandra L. Blair, Sergey A. Nizkorodov, Richard W. Smith, and Hind A. Al-Abadleh  
*Environmental Science & Technology* 2015 49 (13), 7793-7801  
DOI: 10.1021/acs.est.5b01032

**38. Geochemical Triggers of Arsenic Mobilization during Managed Aquifer Recharge**

Sarah Fakhreddine, Jessica Dittmar, Don Phipps, Jason Dadakis, and Scott Fendorf  
*Environmental Science & Technology* 2015 49 (13), 7802-7809  
DOI: 10.1021/acs.est.5b01140

**39. Modeling Nonlinear Adsorption to Carbon with a Single Chemical Parameter: A Lognormal Langmuir Isotherm**

Craig Warren Davis and Dominic M. Di Toro

*Environmental Science & Technology* 2015 49 (13), 7810-7817

DOI: 10.1021/es5061963

**40. Modeling Nonlinear Adsorption with a Single Chemical Parameter: Predicting Chemical Median Langmuir Binding Constants**

Craig Warren Davis and Dominic M. Di Toro

*Environmental Science & Technology* 2015 49 (13), 7818-7824

DOI: 10.1021/es506199t

**41. Microbial Transport, Retention, and Inactivation in Streams: A Combined Experimental and Stochastic Modeling Approach**

Jennifer D. Drummond, Robert J. Davies-Colley, Rebecca Stott, James P. Sukias, John W. Nagels, Alice Sharp, and Aaron I. Packman

*Environmental Science & Technology* 2015 49 (13), 7825-7833

DOI: 10.1021/acs.est.5b01414

**42. Significant Contributions of Isoprene to Summertime Secondary Organic Aerosol in Eastern United States**

Qi Ying, Jingyi Li, and Sri Harsha Kota

*Environmental Science & Technology* 2015 49 (13), 7834-7842

DOI: 10.1021/acs.est.5b02514

**43. Decreasing Aerosol Water Is Consistent with OC Trends in the Southeast U.S.**

Thien Khoi V. Nguyen, Shannon L. Capps, and Annmarie G. Carlton

*Environmental Science & Technology* 2015 49 (13), 7843-7850

DOI: 10.1021/acs.est.5b00828

**44. Parsimonious Model for Simulating Total Mercury and Methylmercury in Boreal Streams Based on Riparian Flow Paths and Seasonality**

Karin Eklöf, Andrea Kraus, Martyn Futter, Jakob Schelker, Markus Meili, Elizabeth W. Boyer, and Kevin Bishop

*Environmental Science & Technology* 2015 49 (13), 7851-7859

DOI: 10.1021/acs.est.5b00852

**45. Solid Manure As a Source of Fecal Indicator Microorganisms: Release under Simulated Rainfall**

Ryan A. Blaustein, Yakov A. Pachepsky, Robert L. Hill, and Daniel R. Shelton

*Environmental Science & Technology* 2015 49 (13), 7860-7869

DOI: 10.1021/acs.est.5b01095

**46. Optimal Ozone Control with Inclusion of Spatiotemporal Marginal Damages and Electricity Demand**

S. Morteza Mesbah, Amir Hakami, and Stephan Schott

*Environmental Science & Technology* 2015 49 (13), 7870-7878

DOI: 10.1021/acs.est.5b01178

**47. Surface Roughness Impacts on Granular Media Filtration at Favorable Deposition Conditions: Experiments and Modeling**

Chao Jin, Stefano D. Normani, and Monica B. Emelko

*Environmental Science & Technology* 2015 49 (13), 7879-7888

DOI: 10.1021/acs.est.5b01998

**48. Mobile Laboratory Observations of Methane Emissions in the Barnett Shale Region**

Tara I. Yacovitch, Scott C. Herndon, Gabrielle Pétron, Jonathan Kofler, David Lyon, Mark S. Zahniser, and Charles E. Kolb

*Environmental Science & Technology* 2015 49 (13), 7889-7895

DOI: 10.1021/es506352j

**49. Near-Field Characterization of Methane Emission Variability from a Compressor Station Using a Model Aircraft**

Brian J. Nathan, Levi M. Golston, Anthony S. O'Brien, Kevin Ross, William A. Harrison, Lei Tao, David J. Lary, Derek R. Johnson, April N. Covington, Nigel N. Clark, and Mark A. Zondlo  
*Environmental Science & Technology* 2015 49 (13), 7896-7903  
DOI: 10.1021/acs.est.5b00705

## **50. Aircraft-Based Measurements of Point Source Methane Emissions in the Barnett Shale Basin**

Tegan N. Lavoie, Paul B. Shepson, Maria O. L. Cambaliza, Brian H. Stirm, Anna Karion, Colm Sweeney, Tara I. Yacovitch, Scott C. Herndon, Xin Lan, and David Lyon  
*Environmental Science & Technology* 2015 49 (13), 7904-7913  
DOI: 10.1021/acs.est.5b00410

## **51. GC $\times$ GC Quantification of Priority and Emerging Nonpolar Halogenated Micropollutants in All Types of Wastewater Matrices: Analysis Methodology, Chemical Occurrence, and Partitioning**

Petros Dimitriou-Christidis, Alex Bonvin, Saer Samanipour, Juliane Hollender, Rebecca Rutler, Jimmy Westphale, Jonas Gros, and J. Samuel Arey  
*Environmental Science & Technology* 2015 49 (13), 7914-7925  
DOI: 10.1021/es5049122

## **52. Real-Time Visualization of Perylene Nanoclusters in Water and Their Partitioning to Graphene Surface and Macrophage Cells**

Xuejun Guo, Xin Jin, Xiaofang Lv, Yingying Pu, and Fan Bai  
*Environmental Science & Technology* 2015 49 (13), 7926-7933  
DOI: 10.1021/acs.est.5b01880

## **53. Phosphate Detection through a Cost-Effective Carbon Black Nanoparticle-Modified Screen-Printed Electrode Embedded in a Continuous Flow System**

Daria Talarico, Stefano Cinti, Fabiana Arduini, Aziz Amine, Danila Moscone, and Giuseppe Palleschi  
*Environmental Science & Technology* 2015 49 (13), 7934-7939  
DOI: 10.1021/acs.est.5b00218

## **54. Intrinsic Chemiluminescence Generation during Advanced Oxidation of Persistent Halogenated Aromatic Carcinogens**

Li Mao, Yu-Xiang Liu, Chun-Hua Huang, Hui-Ying Gao, Balaraman Kalyanaraman, and Ben-Zhan Zhu  
*Environmental Science & Technology* 2015 49 (13), 7940-7947  
DOI: 10.1021/acs.est.5b01227

## **55. Protocatechuic Acid Promoted Alachlor Degradation in Fe(III)/H<sub>2</sub>O<sub>2</sub> Fenton System**

Yixin Qin, Fahui Song, Zhihui Ai, Pingping Zhang, and Lizhi Zhang  
*Environmental Science & Technology* 2015 49 (13), 7948-7956  
DOI: 10.1021/es506110w

## **56. Thermal Stability of Ettringite Exposed to Atmosphere: Implications for the Uptake of Harmful Ions by Cement**

Amalia Jiménez and Manuel Prieto  
*Environmental Science & Technology* 2015 49 (13), 7957-7964  
DOI: 10.1021/acs.est.5b00536

## **57. Elucidating N<sub>2</sub>O Formation during the Cyclic NO<sub>x</sub> Storage and Reduction Process Using CO as a Reductant**

Jun Wang, Xiuting Wang, Jinxin Zhu, Jianqiang Wang, and Meiqing Shen  
*Environmental Science & Technology* 2015 49 (13), 7965-7973  
DOI: 10.1021/acs.est.5b00712

## **58. Degradation of the Common Aqueous Antibiotic Tetracycline using a Carbon Nanotube Electrochemical Filter**

Yanbiao Liu, Han Liu, Zhi Zhou, Tianren Wang, Choon Nam Ong, and Chad D. Vecitis  
*Environmental Science & Technology* 2015 49 (13), 7974-7980  
DOI: 10.1021/acs.est.5b00870

**59. A Cleaner Process for Selective Recovery of Valuable Metals from Electronic Waste of Complex Mixtures of End-of-Life Electronic Products**

Zhi Sun, Y. Xiao, J. Sietsma, H. Agterhuis, and Y. Yang

*Environmental Science & Technology* 2015 49 (13), 7981-7988

DOI: 10.1021/acs.est.5b01023

**60. Improvement of Air/Fuel Ratio Operating Window and Hydrothermal Stability for Pd-Only Three-Way Catalysts through a Pd–Ce<sub>2</sub>Zr<sub>2</sub>O<sub>8</sub> Superstructure Interaction**

Zhiliang Zhang, Yunzhao Fan, Ying Xin, Qian Li, Ruirui Li, James A. Anderson, and Zhaoliang Zhang

*Environmental Science & Technology* 2015 49 (13), 7989-7995

DOI: 10.1021/acs.est.5b01361

**61. Allocation Games: Addressing the Ill-Posed Nature of Allocation in Life-Cycle Inventories**

Rebecca J. Hanes, Nathan B. Cruze, Prem K. Goel, and Bhavik R. Bakshi

*Environmental Science & Technology* 2015 49 (13), 7996-8003

DOI: 10.1021/acs.est.5b01192

**62. Enhanced Performance of Polyurethane Hybrid Membranes for CO<sub>2</sub> Separation by Incorporating Graphene Oxide: The Relationship between Membrane Performance and Morphology of Graphene Oxide**

Ting Wang, Li Zhao, Jiang-nan Shen, Li-guang Wu, and Bart Van der Bruggen

*Environmental Science & Technology* 2015 49 (13), 8004-8011

DOI: 10.1021/acs.est.5b00138

**63. Long-Term n-Caproic Acid Production from Yeast-Fermentation Beer in an Anaerobic Bioreactor with Continuous Product Extraction**

Shijian Ge, Joseph G. Usack, Catherine M. Spirito, and Largus T. Angenent

*Environmental Science & Technology* 2015 49 (13), 8012-8021

DOI: 10.1021/acs.est.5b00238

**64. Benzo(a)pyrene Metabolism and EROD and GST Biotransformation Activity in the Liver of Red- and White-Blooded Antarctic Fish**

Anneli Strobel, Patricia Burkhardt-Holm, Peter Schmid, and Helmut Segner

*Environmental Science & Technology* 2015 49 (13), 8022-8032

DOI: 10.1021/acs.est.5b00176

**65. Association between Several Persistent Organic Pollutants in Serum and Adipokine Levels in Breast Milk among Lactating Women of Korea**

Sunmi Kim, Jeongim Park, Hai-Joong Kim, Jeong Jae Lee, Gyuyeon Choi, Sooran Choi, Sungjoo Kim, Su Young Kim, Duk Hee Lee, Hyo-Bang Moon, Sungkyoon Kim, and Kyungho Choi

*Environmental Science & Technology* 2015 49 (13), 8033-8040

DOI: 10.1021/acs.est.5b00520

**66. Effects of Differently Coated Silver Nanoparticles on the Photosynthesis of Chlamydomonas reinhardtii**

Enrique Navarro, Bettina Wagner, Niksa Odzak, Laura Sigg, and Renata Behra

*Environmental Science & Technology* 2015 49 (13), 8041-8047

DOI: 10.1021/acs.est.5b01089

**67. Static and Dynamic Microscopy of the Chemical Stability and Aggregation State of Silver Nanowires in Components of Murine Pulmonary Surfactant**

Ioannis G. Theodorou, Danielle Botelho, Stephan Schwander, Junfeng Zhang, Kian Fan Chung, Teresa D. Tetley, Milo S. P. Shaffer, Andrew Gow, Mary P. Ryan, and Alexandra E. Porter

*Environmental Science & Technology* 2015 49 (13), 8048-8056

DOI: 10.1021/acs.est.5b01214

**68. Addressing Global Mortality from Ambient PM<sub>2.5</sub>**

Joshua S. Apte, Julian D. Marshall, Aaron J. Cohen, and Michael Brauer

**69. Metabolomics Reveals that Aryl Hydrocarbon Receptor Activation by Environmental Chemicals Induces Systemic Metabolic Dysfunction in Mice**

Limin Zhang, Emmanuel Hatzakis, Robert G. Nichols, Ruixin Hao, Jared Correll, Philip B. Smith, Christopher R. Chiaro, Gary H. Perdew, and Andrew D. Patterson  
*Environmental Science & Technology* 2015 49 (13), 8067-8077  
DOI: 10.1021/acs.est.5b01389

**70. Effects of Humic and Fulvic Acids on Silver Nanoparticle Stability, Dissolution, and Toxicity**

Ian L. Gunsolus, Maral P. S. Mousavi, Kadir Hussein, Philippe Bühlmann, and Christy L. Haynes  
*Environmental Science & Technology* 2015 49 (13), 8078-8086  
DOI: 10.1021/acs.est.5b01496

**71. Tissue Distribution, Metabolism, and Excretion of 3,3'-Dichloro-4'-sulfooxy-biphenyl in the Rat**

Fabian A. Grimm, Xianran He, Lynn M. Teesch, Hans-Joachim Lehmler, Larry W. Robertson, and Michael W. Duffel  
*Environmental Science & Technology* 2015 49 (13), 8087-8095  
DOI: 10.1021/acs.est.5b01499

**72. Metabolic Effect Level Index Links Multivariate Metabolic Fingerprints to Ecotoxicological Effect Assessment**

Janet Riedl, René Schreiber, Matthias Otto, Hermann Heilmeier, Rolf Altenburger, and Mechthild Schmitt-Jansen  
*Environmental Science & Technology* 2015 49 (13), 8096-8104  
DOI: 10.1021/acs.est.5b01386

**73. Human Serum from Urban and Rural Adolescents and Their Mothers Shows Exposure to Polychlorinated Biphenyls Not Found in Commercial Mixtures**

Wen Xin Koh, Keri C. Hornbuckle, and Peter S. Thorne  
*Environmental Science & Technology* 2015 49 (13), 8105-8112  
DOI: 10.1021/acs.est.5b01854

**74. Combined Toxicity of Nano-ZnO and Nano-TiO<sub>2</sub>: From Single- to Multinanomaterial Systems**

Tiezheng Tong, Carolyn M. Wilke, Jinsong Wu, Chu Thi Thanh Binh, John J. Kelly, Jean-François Gaillard, and Kimberly A. Gray  
*Environmental Science & Technology* 2015 49 (13), 8113-8123  
DOI: 10.1021/acs.est.5b02148

**75. Aircraft-Based Estimate of Total Methane Emissions from the Barnett Shale Region**

Anna Karion, Colm Sweeney, Eric A. Kort, Paul B. Shepson, Alan Brewer, Maria Cambaliza, Stephen A. Conley, Ken Davis, Aijun Deng, Mike Hardesty, Scott C. Herndon, Thomas Lauvaux, Tegan Lavoie, David Lyon, Tim Newberger, Gabrielle Pétron, Chris Rella, Mackenzie Smith, Sonja Wolter, Tara I. Yacovitch, and Pieter Tans  
*Environmental Science & Technology* 2015 49 (13), 8124-8131  
DOI: 10.1021/acs.est.5b00217

**76. Methane Emissions from Leak and Loss Audits of Natural Gas Compressor Stations and Storage Facilities**

Derek R. Johnson, April N. Covington, and Nigel N. Clark  
*Environmental Science & Technology* 2015 49 (13), 8132-8138  
DOI: 10.1021/es506163m

**77. Characterizing Fugitive Methane Emissions in the Barnett Shale Area Using a Mobile Laboratory**

Xin Lan, Robert Talbot, Patrick Laine, and Azucena Torres  
*Environmental Science & Technology* 2015 49 (13), 8139-8146  
DOI: 10.1021/es5063055

## **78. Constructing a Spatially Resolved Methane Emission Inventory for the Barnett Shale Region**

David R. Lyon, Daniel Zavala-Araiza, Ramón A. Alvarez, Robert Harriss, Virginia Palacios, Xin Lan, Robert Talbot, Tegan Lavoie, Paul Shepson, Tara I. Yacovitch, Scott C. Herndon, Anthony J. Marchese, Daniel Zimmerle, Allen L. Robinson, and Steven P. Hamburg  
*Environmental Science & Technology* 2015 49 (13), 8147-8157  
DOI: 10.1021/es506359c

## **79. Airborne Ethane Observations in the Barnett Shale: Quantification of Ethane Flux and Attribution of Methane Emissions**

Mackenzie L. Smith, Eric A. Kort, Anna Karion, Colm Sweeney, Scott C. Herndon, and Tara I. Yacovitch  
*Environmental Science & Technology* 2015 49 (13), 8158-8166  
DOI: 10.1021/acs.est.5b00219

## **80. Toward a Functional Definition of Methane Super-Emitters: Application to Natural Gas Production Sites**

Daniel Zavala-Araiza, David Lyon, Ramón A. Alvarez, Virginia Palacios, Robert Harriss, Xin Lan, Robert Talbot, and Steven P. Hamburg  
*Environmental Science & Technology* 2015 49 (13), 8167-8174  
DOI: 10.1021/acs.est.5b00133

## **81. Integrating Source Apportionment Tracers into a Bottom-up Inventory of Methane Emissions in the Barnett Shale Hydraulic Fracturing Region**

Amy Townsend-Small, Josette E. Marrero, David R. Lyon, Isobel J. Simpson, Simone Meinardi, and Donald R. Blake  
*Environmental Science & Technology* 2015 49 (13), 8175-8182  
DOI: 10.1021/acs.est.5b00057

## **82. Natural Gas and Cellulosic Biomass: A Clean Fuel Combination? Determining the Natural Gas Blending Wall in Biofuel Production**

Mark M. Wright, Navid Seifkar, William H. Green, and Yuriy Román-Leshkov  
*Environmental Science & Technology* 2015 49 (13), 8183-8192  
DOI: 10.1021/acs.est.5b00060

## **83. Microbial Electrolytic Carbon Capture for Carbon Negative and Energy Positive Wastewater Treatment**

Lu Lu, Zhe Huang, Greg H. Rau, and Zhiyong Jason Ren  
*Environmental Science & Technology* 2015 49 (13), 8193-8201  
DOI: 10.1021/acs.est.5b00875

## **84. Coupled Geochemical Impacts of Leaking CO<sub>2</sub> and Contaminants from Subsurface Storage Reservoirs on Groundwater Quality**

Hongbo Shao, Nikolla P. Qafoku, Amanda R. Lawter, Mark E. Bowden, and Christopher F. Brown  
*Environmental Science & Technology* 2015 49 (13), 8202-8209  
DOI: 10.1021/acs.est.5b01004

## **85. Mercury Adsorption and Oxidation over Cobalt Oxide Loaded Magnetospheres Catalyst from Fly Ash in Oxyfuel Combustion Flue Gas**

Jianping Yang, Yongchun Zhao, Lin Chang, Junying Zhang, and Chuguang Zheng  
*Environmental Science & Technology* 2015 49 (13), 8210-8218  
DOI: 10.1021/acs.est.5b01029

## **86. Well-to-Wheels Greenhouse Gas Emissions of Canadian Oil Sands Products: Implications for U.S. Petroleum Fuels**

Hao Cai, Adam R. Brandt, Sonia Yeh, Jacob G. Englander, Jeongwoo Han, Amgad Elgowainy, and Michael Q. Wang  
*Environmental Science & Technology* 2015 49 (13), 8219-8227  
DOI: 10.1021/acs.est.5b01255

## **87. Reservoirs of Selenium in Coal Waste Rock: Elk Valley, British Columbia, Canada**

M. Jim Hendry, Ashis Biswas, Joseph Essilfie-Dughan, Ning Chen, Stephen J. Day, and S. Lee

Barbour

*Environmental Science & Technology* 2015 49 (13), 8228-8236

DOI: 10.1021/acs.est.5b01246

## **88. Tailor-Made Core–Shell CaO/TiO<sub>2</sub>–Al<sub>2</sub>O<sub>3</sub> Architecture as a High-Capacity and Long-Life CO<sub>2</sub> Sorbent**

Weiwei Peng, Zuwei Xu, Cong Luo, and Haibo Zhao

*Environmental Science & Technology* 2015 49 (13), 8237-8245

DOI: 10.1021/acs.est.5b01415

## **89. Chromium Reaction Mechanisms for Speciation using Synchrotron in-Situ High-Temperature X-ray Diffraction**

Fiona Low, Justin Kimpton, Siobhan A. Wilson, and Lian Zhang

*Environmental Science & Technology* 2015 49 (13), 8246-8253

DOI: 10.1021/acs.est.5b01557

## **90. A Comprehensive Analysis of Groundwater Quality in The Barnett Shale Region**

Zacariah L. Hildenbrand, Doug D. Carlton, Jr., Brian E. Fontenot, Jesse M. Meik, Jayme L. Walton, Josh T. Taylor, Jonathan B. Thacker, Stephanie Korlie, C. Phillip Shelor, Drew Henderson, Akinde F.

Kadjo, Corey E. Roelke, Paul F. Hudak, Taylour Burton, Hanadi S. Rifai, and Kevin A. Schug

*Environmental Science & Technology* 2015 49 (13), 8254-8262

DOI: 10.1021/acs.est.5b01526

## **91. Comment on “Environmental Fate of the Next Generation Refrigerant 2,3,3,3-Tetrafluoropropene (HFO-1234yf)”.**

T.J. Wallington and J.E. Anderson

*Environmental Science & Technology* 2015 49 (13), 8263-8264

DOI: 10.1021/es505996r

## **92. Response to Comment on “Environmental Fate of the Next Generation Refrigerant 2,3,3,3-Tetrafluoropropene (HFO-1234yf)”.**

Jeongdae Im, Gillian E. Walshe-Langford, Ji-Won Moon, and Frank E. Löffler

*Environmental Science & Technology* 2015 49 (13), 8265-8266

DOI: 10.1021/acs.est.5b01970

## **93. Correction to Natural Colloidal P and Its Contribution to Plant P Uptake**

Daniela Montalvo, Fien Degryse, and Mike J. McLaughlin

*Environmental Science & Technology* 2015 49 (13), 8267-8267

DOI: 10.1021/acs.est.5b02574