



GROUNDWATER RESOURCES ASSOCIATION
O F C A L I F O R N I A

The 22nd Symposium in the Series on Groundwater Contaminants

***“Nanotechnology for Environmental Cleanup and
Pollution Control - Science, Implementation, and
Regulatory Issues”***

November 3, 2009

Hyatt Regency San Francisco Airport Hotel - Burlingame, California

SYMPOSIUM AGENDA

(as of 10/19/09)

- 7:30 am** **REGISTRATION/Continental Breakfast**
- 8:20 – 8:35 am** **Welcome and Opening Remarks**
Brian Lewis, CalEPA/DTSC, GRA Board Director
- Topic 1: Nanotechnology for Groundwater Remediation**
Moderator: Zhong Xiong, Ph.D. AMEC Geomatrix
- 8:35 – 9:00 am** *Nanotechnology for Site Remediation: Benefits and Potential Risks*
Martha Otto, U.S. Environmental Protection Agency
- 9:00 - 9:25 am** *Nanoremediation Technologies*
Wei-xian Zhang, Ph.D., Lehigh University
- 9:25 – 9:50 am** *In-Situ Reductive Destruction of Chlorinated Solvents and Immobilization
of Toxic Metals in Soils and Groundwater Using Polysaccharide-
Stabilized Nanoparticles*
Dongye Zhao, Ph.D., Auburn University
- 9:50 – 10:20 am** **Break – Exhibit Area**

Register for the GRA Nanotechnology Symposium at <http://www.grac.org/nanoreg>

- 10:20 – 10:45 am *Assessing the Performance of Nano Zero-Valent Iron for Groundwater Remediation: Reconciling General Considerations with Practitioner's Claims*
Paul Tratnyek, Ph.D., Oregon Health & Science University
- 10:45 – 11:10 am *Perchlorate-Selective Dendritic Microparticles for Groundwater Remediation*
Mamadou Diallo, Ph.D., California Institute of Technology
- 11:10 – 11:35 am *Improving NZVI Performance with Chemical Regeneration*
David Cwiertny, Ph.D., University of California Riverside

Topic 2: Nanotechnology for Surface Water Treatment and Pollution Control

Moderator: David Cwiertny, Ph.D., University of California Riverside

- 11:35 – 12:00 pm *Activation of Oxygen and Hydrogen Peroxide by Iron-Containing Nanoparticles*
David Sedlak, Ph.D., University of California at Berkeley

12:00 – 1:00 pm Lunch

- 1:00 – 1:25 pm *Water-Soluble C₆₀ Derivatives Display Extraordinary Photochemical and Antimicrobial Activities*
Jaesang Lee, Ph.D., Rice University

Topic 3: Fate and Transport of Nanomaterials

Moderator: David Cwiertny, Ph.D., University of California Riverside

- 1:25 – 1:50 pm *Predicting the Behavior of Your Nanomaterial in the Environment*
Chris Mackay, Ph.D., AMEC Earth & Environment
- 1:50 – 2:15 pm *Assessment of nZVI Mobility Related to Subsurface Remediation*
Denis O'Carroll, Ph.D., University of Western Ontario

Topic 4: Case Studies

Moderator: Murray Einarson, AMEC Geomatrix

- 2:15 – 2:40 pm *Field Assessment of Carboxymethyl Cellulose Stabilized Nanoscale Zero Valent Iron*
Peter Bennett, AMEC Geomatrix
- 2:40 – 3:05 pm *Field Evaluation of the Treatment of DNAPL Using Emulsified Zero-Valent Iron*
Suzanne O'Hara, GeoSyntec

3:05 – 3:35 pm Break – Exhibit Area

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Topic 5: Regulatory Issues with Nanomaterials and Nanotechnology

Moderator: Jeff Wong, Ph.D., CalEPA/DTSC

- 3:35 – 4:00 pm *Acceptance of nZVI Technology for Environmental Restoration*
Todd Rees, Ph.D., Golder Associates
- 4:00 – 4:25 pm *Nanotechnology's Road to Regulation: A Small Business' Perspective*
Arianne Neigh, Ph.D., nanoComposix
- 4:25 – 4:50 pm *Status of US Regulation of Nanotechnology*
Richard Canady, Ph.D., McKenna Long & Aldridge LLP
- 4:50 – 5:15 pm *Regulatory Perspectives on Nanotechnology and Nanomaterials*
Timothy Malloy, University of California, Los Angeles, Law

5:15 – 5:45 pm Summation and Discussion of Key Points

Moderator: Denis O'Carroll, Ph.D., University of Western Ontario