

Symposium 8

Title: **Nanoparticles, Colloids, and Interfaces in the Environment**
Chair/Co-Chair: M. Elimelech, L. Katz, A. Zander
Chair Assistant: S. Pandija
Location: 241 Snell

Monday June 13, 2005

Presiding: L.E. Katz, M. Elimelech, S.E. Mylon, T.H. Nguyen

Paper	Time	Title and Authors
8-01**	11:00 - 11:40 AM	Polymer-Supported Iron Nanoparticles and Microparticles as Remedants for Subsurface Contaminants B.W. Hydutsky, B. Schrick, B. Beckerman, E. Mack, T.E. MALLOUK
8-02	11:40 - 12:00 AM	Targeted Delivery of Nanoiron to the NAPL-water Interface N.B. SALEH, K. Sirk, T. Sarbu, G.V. Lowry, R.D. Tilton, K. Matyjaszewski, G. Redden
8-03	12:00 - 12:20 PM	Synthesis of Magnetite Nanoparticles from Reclaimed Acid Mine Drainage R.C. Viadero, Jr, and X. WEI
8-04	1:30 - 1:50 PM	Bridging the Gap between Macroscopic and Spectroscopic Studies of Metal Ion Sorption at the Oxide/Water Interface L. E. KATZ, C.-C. Chen, M. L. Coleman, and A. D. Wiesner
8-05	1:50 - 2:10 PM	Surface Characterization of a Novel Material for Arsenic Removal A. Baker, K. Przyuski, A.D. Kney, and S.E. MYLON
8-06	2:10 - 2:30 PM	Novel Nanostructured Anatase Assemblies from Algae as Strong Catalysts for the Hydrolysis of Organophosphorous Esters C.-H. HUANG, S. Lee, S. Shian and K. H. Sandhage

8-07	2:30 - 2:50 PM	Comparison of Surface Complexation Models for Predicting Bi-Solute Metal Ion Sorption onto Iron Oxides A.R. VIEIRA, S.N. Stokes, C.-C. Chen, and L.E. Katz
8-08	3:20 - 3:40 PM	Mechanisms Controlling the Release of Trace Elements from Clean-Coal Technology By-product: Effect of Proton and Organic Ligands C.-M. CHENG, J. Bigham, and H. Walker
8-09	3:40 - 4:00 PM	Absorption and Adsorption of Hydrophobic Organic Contaminants to Black Carbon Soots T.H. NGUYEN, L.A. Langley, D.H. Fairbrother, W.P. Ball
8-10	4:00 - 4:20 PM	Colloids Partitioning between Organic and Aqueous Phase Cause the Low Interfacial Tension of DNAPL S.E. Powers, W. DOU
8-11	4:20 - 4:40 PM	Application of ac Electrokinetics in Membrane Filtration Processes S. H. Molla, and S. BHATTACHARJEE
8-12	4:40 - 5:00 PM	Monte Carlo Simulation of Colloidal Membrane Filtration: Principal Issues for Modeling J.C. Chen, M. Elimelech, Y. LI, and A.S. Kim
8-13	5:00 - 5:20 PM	Humic Acid Removal with Aminated PGMA Beads C. LIU, and R. Bai

Tuesday June 14, 2005

Presiding: N. Tufenkji, H. Walker, S. Ghoshal,

8-14**	10:30 – 11:10 AM	Colloids in Subsurface Environments: Aggregation, Deposition, and Facilitated Transport M. BORKOVEC
8-15	11:10 – 11:30 AM	Influence of Alginate and Ionic Composition on the Stability of Hematite Colloids K.L. CHEN, S.E. Mylon, and M. Elimelech

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| 8-16 | 11:30 - 11:50 PM | Effect of Monovalent and Divalent Electrolytes on the Adsorption of Polysaccharides on Solid Surfaces in Aquatic Systems
A.J.D. KERCHOVE and, M. Elimelech |
| 8-17 | 11:50 - 12:10 PM | Effect of Chemical and Hydrodynamic Parameters on Interfacial Retention of Colloids in Unsaturated Micromodel Channel
V. LAZOUSKAYA and, Y. Jin |
| 8-18 | 12:10 - 12:30 PM | Direct observation of Colloid Deposition at Grain-Grain Contacts in Porous Media Using X-ray Microtomography
X. LI, C.L. Lin, J.D. Miller, W.P. Johnson |
| 8-19 | 1:30 - 1:50 PM | Secondary Minimum Sorption of Microorganisms: Unexpected Prevalence, Implications and Modeling
L.L. LANDKAMER, R.A. AbuDalo, R.W. Harvey, D.W. Metge, and J.N. Ryan |
| 8-20 | 1:50 - 2:10 PM | Force Interactions Profiles between <i>Cryptosporidium parvum</i> Oocysts and Silica Surfaces
T. L. BYRD and J. Y. Walz |
| 8-21 | 2:10 - 2:30 PM | Role of Surface Proteins in the Deposition Kinetics of <i>Cryptosporidium parvum</i> Oocysts
Z.A. KUZNAR, and M. Elimelech |
| 8-22 | 2:30 - 2:50 PM | Profiles of Retained <i>Cryptosporidium</i> Oocysts in Porous Media – Evidence for Dual Mode Deposition
N. TUFENKJI |
| 8-23 | 3:20 - 3:40 PM | Influence of Nutrient Condition on the Adhesion Kinetics of <i>Burkholderia cepacia</i> G4g and ENV435g
D. Nilasari and S.L. WALKER |
| 8-24 | 3:40 - 4:00 PM | Bio-Colloid Facilitated Metal Transport in Geologic Media: Observations and Surface Complexation Modeling
L.L. LANDKAMER, R.W. Harvey, & D.W. Metge |

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| 8-25 | 4:00 - 4:20 PM | Deposition and Re-entrainment Dynamics of Microbes and Non-Biological Colloids during Non-Perturbed Transport in Porous Media in the Presence of an Energy Barrier to Deposition
W.P. JOHNSON, X. Li, M. Tong, S. Assemi |
| 8-26 | 4:20 - 4:40 PM | Real-time Observation of Colloid Transport in Porous Media at Mesoscales Using Epi-fluorescence Imaging
Y. Wang and P. ZHANG |
| 8-27 | 4:40 - 5:00 PM | Role of Zones of Low Hydrodynamic Drag in Colloid Deposition and Re-entrainment in Porous Media
M. TONG, W.P. Johnson |
| 8-28 | 5:00 - 5:20 PM | Deposition and Characterization of Nanoparticulate FeS on Quartz Surfaces for Remediation of As(III) Contaminated Groundwater
T.J. GALLEGOS, K.F. Hayes, L.M. Abriola |

Wednesday June 15, 2005

Presiding: L.L. Landkamer

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| 8-29** | 10:00 – 10:40 AM | Homogeneous Nucleation in the Ambient Atmosphere
P.K. HOPKE |
| 8-30 | 10:40 – 11:00 AM | Direct Force Measurements between Carboxylate-Modified Latex Microspheres and a Glass Surface Using Atomic Force Microscopy
S. ASSEMI, J. Nalaskowski, W.P. Johnson |
| 8-31 | 11:00 - 11:20 PM | Development and Use of a Bioluminescent Biosensor for Assessing the Bioavailability of Organic Pollutants in Surfactant Micelles
A. Keane, P.C.K. Lau, and S. GHOSHAL |
| 8-32 | 11:20 - 11:40 PM | Mixed-Order Modeling of Simultaneous Particle and Dissolved Substrate Removal by Aerobic Biological Film Wastewater Treatment Systems
J.P. BOLTZ and L. Motta |

8-33

11:40 - 12:00 PM

High Performance Carbon Honeycomb for Air
Separation

K. LASZLO, G. Onyestyak, E. Geissler