ENVR

DIVISION OF ENVIRONMENTAL CHEMISTRY

Final Program, 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008

G. Coimbatore, *Program Chair*

OTHER SYMPOSIA OF INTEREST:

Green Chemistry & Engineering (see *JOINT*, Mon, Tue)

Speciation of Arsenic and Other Trace Elements in Soils and Sediments (see *GEOC*, Wed, Thu)

Environmental Chemistry (see *ANYL*, Tue)

Nanomaterials in Analytical Chemistry (see *ANYL*, Mon)

SOCIAL EVENTS:
Dinner: Tue
Social Hour: Tue

BUSINESS MEETINGS:
Executive Committee Meeting: Sun
Long Range Planning Meeting: Sun
Program Planning Meeting: Sun

SUNDAY MORNING

Section A

Ernest N. Morial Convention Center -- Rm. 235

Environmental Behavior and Fate of Manufactured Nanomaterials

Suspension and Sorption

Cosponsored by ENGENV
J. A. Pedersen, *Organizer*
B. Xing, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —1. Natural organic matter assisted dispersion of carbon nanotubes in the aqueous phase. **H. Hyung**, J. D. Fortner, J. B. Hughes, J -H. Kim

9:00 —2. Natural organic matter enhanced dispersion of C_{60} in the aqueous phase. **B. Xie**, Q. Li

9:25 —3. Role of macromolecules on aggregation size of titanium dioxide nanoparticles. D. S. Janjaroen, **T. H. Nguyen**

9:50 —4. Study of aqueous nano-C_{60} formation and interaction with soil under typical groundwater conditions. **P. Zhang**, A. T. Kan, M. B. Tomson

10:15 — Intermission.

10:30 —5. Sorption of endocrine disrupting chemicals on carbon nanomaterials. **B. Pan**, B. Xing

10:55 —6. Adsorption of selected organic chemicals onto multiwalled carbon nanotubes. **K. Yang**

11:20 —7. Adsorption and desorption of arsenic on nanomagnetite. **W. Yang**, A. T. Kan, W. Chen, M. B. Tomson

11:45 —8. Dissolved organic matter affects sorption of organic contaminants on carbon nanotubes. X. Wang, **B. Xing**

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Adsorption Processes for Drinking Water Treatment and Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
T. H. Nguyen and E. Morgenroth, *Organizers*
D. R. U. Knappe, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —9. Activated carbon research progress and research needs. **V. L. Snoeyink**, L. Ding

9:15 —10. Using TOC adsorption to predict the adsorption of MIB by granular and powdered activated carbon. **R. S. Summers**, S. M. Kim, H. Cho

9:35 —11. Molecular interactions between synthetic organic contaminants (SOCs) and carbon

nanotubes (CNTs): Effects of π-π interactions and size exclusion. **J. E. Kilduff**, H -N. Lim

9:55 —12. MTBE adsorption: Evaluating EBCT, competition and fouling in the microgram/liter range. **R. S. Summers**, D. Dani, B. Zachman, C. Corwin, N. Blute, M. McGuire, D. Knappe

10:15 — Intermission.

10:30 —13. Kinetics of trace micropollutant adsorption and implications for modeling and adsorber design. **R. S. Summers**, C. Corwin, S. M. Kim

10:50 —14. Optimizing a biologically active carbon (BAC) reactor for nitrate and perchlorate removal using biological activity and GAC adsorption capacity. **X. Li**, G. Upadhyaya, W. Yuen, J. Brown, E. Morgenroth, L. Raskin

11:10 —15. Use of ozonation/biological-activated carbon for the control of disinfection by-products and biological stability in drinking water. **S. Shu**, **J. Zhang**

11:30 —16. Use of high-silica zeolites for the targeted removal of taste and odor compounds from drinking water. **D. R. U. Knappe**, B. Yuncu

11:50 —17. Delivery and targeting of functional aerosol particle in DNAPL remediation. **J. Zhan**, C. Day, G. Piringer, G. L. McPherson, Y. Lu, K. Papadopoulos, V. T. John

Section C

Ernest N. Morial Convention Center -- Rm. 237

New Membranes and Resins for Wastewater Treatment

*Cosponsored by ACS Division of Environmental Chemistry and AIChE Environmental Division (Group 9) and JOINT**
A. Mueller, B. Guieysse, A. Jackson, and K. Rindfusz, *Organizers*
A. Sarkar, *Organizer, Presiding*

8:30 —18. Imprinted polymers for the removal of hydrophobic compounds from wastewater. C. Mercado, J. Mosey, S. A. Ashraf, **A. Mueller**

9:00 —19. Removal of endocrine disrupting contaminants using molecularly imprinted polymers. **B. Guieysse**, M. Le Noir, B. Mattiasson

9:30 —20. Imprinted polymers for the removal of hydrophilic metal complexes from water. **S. A. Ashraf**, A. Mueller

10:00 —21. Removal of endocrine-disrupting compounds from water using macroporous molecularly imprinted selective media. **M. Le Noir**, F. M. Plieva, B. Mattiasson

10:30 —22. Impact of calcium on struvite precipitation from anaerobically digested dairy wastewater. **T. Zhang**, K. Bowers, J. Harrison, S. Chen

11:00 —23. Molecular design approach to the synthesis of thermally responsive metal affinity hydrogels. **A. Nadarajah**, G. Iyer

11:30 —24. *Gamma* polymerized Zn(II) methacrylate for adsorbtion of Pb(II) from wastewater. **B. Bilyeu**, F. Ureña-Nuñez, C. Barrera-Díaz

12:00 —25. Heavy metal removal using natural zeolite packed ion exchange column. **Ö. Can**, D. Balkose, S. Ulku

SUNDAY AFTERNOON

Section A

Ernest N. Morial Convention Center -- Rm. 235

Environmental Behavior and Fate of Manufactured Nanomaterials

Fate and Transport

Cosponsored by ENGENV
B. Xing, *Organizer*
J. A. Pedersen, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —26. Effects of small molecular weight acids on C_{60} aggregate formation and transport. **P. J. Vikesland**, X. Chang, L. K. Duncan, J. R. Jinschek, M. Chan

2:00 —27. Assessment of the fate of metal oxide nanomaterials in porous media. **N. T. Loux**, N. F. Savage

2:25 —28. Effect of nanoparticle aggregation, particle size distribution and concentration on transport of surface-modified nanoscale zero-valent iron (NZVI) particles in saturated porous media. **T. Phenrat**, F. Fagerlund, H -J. Kim, T. Illangasekare, R. D. Tilton, G. V. Lowry

2:50 —29. Effect of pH and clay on the transportability of surface-modified Fe^0 nanoparticles in saturated sand columns. **H -J. Kim**, N. B. Saleh, T. Phenrat, R. D. Tilton, G. V. Lowry

3:15 —30. Behavior, fate and effects of different TiO_2 nanoparticles in the aquatic environment. **F. Kammer**, S. Ottofuelling, S. Weilhartner, T. Battin, T. Hofmann

3:40 — Intermission.

3:55 —31. Fate and transport of ionic and nanoparticle silver released from commercially available socks. **T. M. Benn**, P. K. Westerhoff

4:20 —32. Analysis of Au nanorods in samples from an estuarine mesocosm study. **T. J. Shaw**, J. L. Ferry, C. R. Hexel, P. S. Craig, C. J. Murphy, S. Patrick, R. Frey, G. T. Chandler, A. Decho, P. Pennington, M. Fulton

4:45 —33. Transport of surface stabilized zero-valent iron nanoparticles in 2-D flow system packed with porous media. **S. R. Kanel**, R. R. Goswami, T. P. Clement, M. O. Barnett, D. Zhao

5:10 —34. Mobility of multiwalled carbon nanotubes in porous media. X. Liu, **D. M. O'Carroll**, E. Petersen, Q. Huang, L. Anderson

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Adsorption Processes for Drinking Water Treatment and Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth and D. R. U. Knappe, *Organizers*
T. H. Nguyen, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —35. Use of adsorption media for arsenic removal from water. **D. A. Lytle**

2:15 —36. Sorption of aqueous Hg(II) by machinawite (FeS). **J. Liu**, K. T. Valsaraj, I. Devai, R. D. Delaune

2:35 —37. Iron oxide nanoparticle coating on glass substrates for both Arsenic and MS2 virus removal. **X. Li**, J. Wang, L. A. Gutierrez, T. H. Nguyen, J. Economy

2:55 —38. Quantifying arsenic adsorption onto activated aluminum in the presence of other competing elements. **T. Su**, X. Guan, J. Wang

3:15 — Intermission.

3:30 —39. Evaluating above-ground permeable reactive barrier materials: Sorption efficiencies for orthophosphate-P and ammonia-N onto zeolite and limestone. **R. Srinivasan**, D. Hoffman, J. Wolfe III

3:50 —40. Environmental remediation through sequestration in surfactant micelles followed by sequestration in mesoporous materials. **J. Zhou**, D. Vavlekas, G. Tan, M. Singh, C. D. Ford, V.

T. John, G. L. McPherson, J. He, A. Bose

4:10 —41. Functionalized nanoporous inorganic-organic sorbents for the removal of phenolic compounds from water. **M. Zavareh**, C. W. Ingram, F. Ding

4:30 —42. Synthesis and photocatalytic activity of TaO_xN_y and Ta_3N_5. **J. Lucido**, B. Bambgoye, R. Chandrasekharan, N. Ndiege, R. I. Masel, M. A. Shannon

4:50 —43. Synthesis and characterization of Ta_2O_5-grafted SiO_2 nanoparticles for photocatalytic applications. **N. Ndiege**, R. Chandrasekharan, W. N. Harris III, B. Bambgoye, J. Lucido, R. I. Masel, M. A. Shannon

Section C

Ernest N. Morial Convention Center -- Rm. 237

New Membranes and Resins for Wastewater Treatment

*Cosponsored by ACS Division of Environmental Chemistry and AIChE Environmental Division (Group 9) and JOINT**
A. Sarkar, B. Guieysse, A. Jackson, and K. Rindfusz, *Organizers*
A. Mueller, *Organizer, Presiding*

1:30 —44. Development of nanostructured smart membranes. C. Gorey, **I. Escobar**, C. L. Gruden, M. R. Coleman

2:00 —45. Fluids treatment without membrane fouling: Use of micro- and nanoengineered membranes and flow induced segregation. J. Kromkamp, M. Rosso, K. Schroën, R. van der Sman, **R. M. Boom**

2:30 —46. Structured membranes for water treatment. **R. G. H. Lammertink**, Z. Culfaz, W. Nijdam, M. Wessling

3:00 —47. Dendritic polymer networks: A new class of nanostructured antifouling coatings. **P. R. Dvornic**, A. Sarkar, J. Rousseau, C. Hartmann-Thompson, A. Merrington, P. Carver, T. Zhang, S. E. Keinath

3:30 —48. TiO_2 nanowire free-standing membrane for water treatment by concurrent filtration and photocatalytic oxidation. X. Zhang, A. J. Du, **J. H. Pan**, Y. Wang, D. D. Sun, J. O. Leckie

4:00 —49. High throughput synthesis and NOM screening for membrane filtration. **M. Zhou**, J. E. Kilduff, H. Liu, D. G. Anderson, R. S. Langer, G. Belfort

4:30 —50. Apply the modified PVDF UF membrane to oil-field wastewater treatment. **Q. Zhao**, S. Yu, H. Lu, J. Xu, J. Yang

5:00 —51. Novel low-pressure membrane-based technique for arsenic removal from wastewater. **S. Bandyopadhyay**, H. S. Maiti

MONDAY MORNING

Section A

Ernest N. Morial Convention Center -- Rm. 235

Environmental Behavior and Fate of Manufactured Nanomaterials

Exposure and Toxicity

Cosponsored by ENGENV
J. A. Pedersen, *Organizer*
B. Xing, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —52. Partitioning of Au nanorods in saline estuarine mesocosms. **J. L. Ferry**, P. S. Craig, R. Frey, C. R. Hexel, T. J. Shaw, C. J. Murphy, S. Patrick, A. Decho, G. T. Chandler, P. Pennington, M. Fulton

9:00 —53. Assessing environmental exposure potential of nano-TiO_2. **C. O. Robichaud**, M. R. Wiesner

9:25 —54. Assessing response to C_{60} fullerene in *Saccharomyces cerevisiae* and *E. coli*. A. Hadduck, V. Hindagolla, B. Xie, Q. Li, **A. T. Bakalinsky**

9:50 —55. Phytotoxicity of ZnO nanoparticle: Inhibition of ryegrass growth. **D. Lin**, B. Xing

10:15 — Intermission.

10:30 —56. Cytotoxicity and related inflammatory response for some manufactured metal oxide and carbon nanoparticulate material aggregates. **K. M. Garza**, L. E. Murr, K. F. Soto

10:55 —57. Low cytotoxicity and lysosome location of malonic acid fullerene derivatives on rat primary brain capillary endothelial cells. F. Lao, **C. Chen**, D. Han, W. Li, F. Jiao, C. Ge, Y. Liu, **Y. Zhao**

11:20 —58. Dispersion medium plays important role in nanomaterial safety evaluation. **H. Meng**, Z. Chen, G. Xing, H. Yuan, F. Zhao, C. Zhang, Y. Zhao

11:45 —59. Bacterial toxicity of multiwalled carbon nanotubes. **S. Kang**, M. Elimelech

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Adsorption Processes for Drinking Water Treatment and Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, *Organizer*
T. H. Nguyen and D. R. U. Knappe, *Organizers, Presiding*

8:30 — Introductory Remarks.

8:35 —60. Study of hydrophobic water interfaces with phase-sensitive sum-frequency vibrational spectroscopy. **C. Tian**, Y. R. Shen

8:55 —61. Vibrational spectroscopy on alumina/water interfaces with surface charges. **L. Zhang**, Y. R. Shen, C. Tian, G. A. Waychunas

9:15 —62. Nitrate and perchlorate removal from water using ion exchange fibers. J. S. Ince, **J. L. Langer**, J. Economy

Section C

Ernest N. Morial Convention Center -- Rm. 237

Membrane Technology for Water Treatment and Reuse

Hybrid Processes and Process Development

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, S. W. Hermanowicz, J. G. Georgiadis, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
D. G. Cahill, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —63. Surface-modified ceramics for membrane distillation of high salinity waters. **Z. D. Hendren**, J. A. Brant, M. R. Wiesner

8:55 —64. Removal of perfluorochemicals *via* nanofiltration. **E. K. Steinle-Darling**, M. Reinhard

9:15 —65. Impact of microfiltration on biofouling of reverse osmosis membranes. **M. Herzberg**, D. Berry, A. M. Briones Jr., L. Raskin, M. Elimelech

9:35 —66. Prefiltration of influent does not alter the bacterial community structure of biofilms on reverse osmosis membranes. **D. Berry**, M. Herzberg, A. M. Briones Jr., M. Elimelech, L. Raskin

9:55 —67. Design and testing of a precipitator for water desalination. **M. C. Nsumuna**, D. D. Chen, G. A. Mensing, J. G. Georgiadis, M. A. Shannon

10:15 — Intermission.

10:30 —68. Low-pressure membrane-based novel technique for decontamination of potable water and wastewater treatment. **S. Bandyopadhyay**, H. S. Maiti

10:50 —69. Evaluation of antifouling ultrafiltration membranes containing PAN-g-PEO additive in anaerobic membrane bioreactors. **P. T. Tontcheva**, A. Asatekin, A. M. Mayes, S. I. Padmasiri, L. Raskin, E. Morgenroth

11:10 —70. Performance of polyacrylonitrile-graft-poly(ethylene oxide) containing ultrafiltration membranes. **A. Asatekin**, A. M. Mayes

11:30 —71. Pilot study on a hybrid nanometer-modified ultrafiltration and electrodialysis process demineralizing oilfield polymer-flooding sewage for reuse. **J. Xu**, S. Yu, **Q. Zhao**, H. Liang, X. Zuo, R. Bao

11:50 —72. Start-up characteristics and steady-state performance of UF-sMBR for drinking water treatment—with PAC as the support for bacterial growth. **J. Tian**, X. Li, S. Tian, **J. Zhang**, G. Li

The Impact of Hurricane Katrina from an Environmental and Petrochemical Perspective

Sponsored by GEOC, Cosponsored by The Clay Minerals Society, ENVR, YCC, and ENGENV

MONDAY AFTERNOON

Section A

Ernest N. Morial Convention Center -- Rm. 235

Environmental Behavior and Fate of Manufactured Nanomaterials

Exposure and Toxicity

Cosponsored by ENGENV
B. Xing, *Organizer*
J. A. Pedersen, *Organizer, Presiding*

1:30 —73. Transformation and toxicity of engineered metal and metal chalcogenide nanoparticles under simulated environmental conditions. **K. M. Metz**, P. N. Wiecinski, R. J. Hamers, J. A. Pedersen

1:55 —74. In vivo nanomaterial-biological interactions: Defining structure response relationships. **R. L. Tanguay**, C. Usenko, S. L. Harper

2:20 —75. Fullerenol $C_{60}(OH)_x$ influences the tubulin polymerization and cell mitosis. **H. Sun**, Y. Li, Y. Zhao, X. Zhang, Y. Liu

2:45 —76. Gold nanoparticles induce oxidative damage in lung fibroblasts in vitro. J. J. Li, B -H. Bay, **L -Y. L. Yung**

3:10 —77. Effects of five nanomaterials on *Gymnodinium breve*. Z -Y. Wang, Z -J. Tian, **F -M. Li**, D -M. Gao, B. Xing

3:35 — Intermission.

3:50 —78. Effects of intact and degraded quantum dots on bacterial growth. **S. Mahendra**, H. Zhu, V. L. Colvin, P. J. Alvarez

4:15 —79. Metal oxide nanoparticles show toxicity to bacteria. **H. Mashayekhi**, W. Jiang, B. Xing

4:40 —80. Translocation and neurotoxicity of iron oxide nanoparticles in the central nervous system. **W. Feng**

5:05 —81. Spatial distribution and speciation of Au and Zn in terrestrial organisms exposed to Au and ZnO nanoparticles. **J. M. Unrine**, P. M. Bertsch, S. E. Hunyadi, H. Ma, L. A. Newman, P. L. Williams

Section B

Ernest N. Morial Convention Center -- Rm. 236

Natural Disasters: Identifying and Addressing Environmental Concerns

Cosponsored by ENGENV
G. P. Cobb III and C. R. Demas, *Organizers, Presiding*

1:30 —82. Environmentally relevant lead concentrations used to predict exposure to New Orleans residents. **M. T. Abel**

1:55 —83. Effects of Hurricane Katrina on benthic macroinvertebrate communities along the northern Gulf of Mexico coast. **J. L. Hyland**, V. D. Engle, C. Cooksey, M. Fulton

2:20 —84. Chemical, toxicological and benthic community analysis of Violet Marsh sediments following Hurricane Katrina. **B. C. Suedel**

2:45 —85. Heavy metal distribution in post-Katrina New Orleans and Louisiana Peninsula. **T. Su**, S. Shu, H. Shi, J. Wang, C. D. Adams, E. C. Witt

3:10 —86. Environmental impacts of Hurricane Katrina: Investigation of in-home multiphase contaminant distributions. **N. Ashley**, K. T. Valsaraj, L. Thibodeaux

Section C

Ernest N. Morial Convention Center -- Rm. 237

Membrane Technology for Water Treatment and Reuse

Biological and Inorganic Fouling of Membranes

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, D. G. Cahill, J. G. Georgiadis, D. Bhattacharyya, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, and T. K. Das, *Organizers*
S. W. Hermanowicz, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —87. Biofilms in water separation membrane processes: From community structure and ecological characteristics to monitoring and control. **W -T. Liu**, C -M. Pang

2:15 —88. Biofilm prevention on photoreactive ceramic membranes. **S. Ciston**, R. M. Lueptow, K. Gray

2:35 —89. Dynamics of biomass membrane filtration. **S. W. Hermanowicz**, J. W. Cho, R. S. Trussell, R. P. Merlo, D. Jenkins

2:55 —90. Microfluidic filtration. **I. S. Ngene**, R. G. H. Lammertink, M. Wessling, W. G. van der Meer

3:15 — Intermission.

3:30 —91. Surface modification of microfiltration membranes to decrease biofouling. **R. Malaisamy**, D. Berry, T. B. Borrell, D. Holder, L. Raskin, K. L. Jones

3:50 —92. Crossflow nanofiltration (NF) of natural nanoparticles and organic matters (NOM): Fouling, transport and interaction effects. **Y. Yuan**, J. E. Kilduff

4:10 —93. Evaluation of fouling constituents in membrane bioreactors: Extracellular polymeric

substances and inorganic precipitation. **T. B. Borrell**, C. Donahue, J. C. Cho, E. Morgenroth, J. Kim, L. Raskin, S. J. Skerlos

4:30 —94. Influence of shear on EPS production in membrane bioreactors. A. L. Menniti, S. Kang, M. Elimelech, **E. Morgenroth**

4:50 —95. Reversibility of bacterial adhesion onto ultrafiltration membranes containing polyacrylonitrile-*graft*-poly(ethylene oxide) comb copolymer additives. **A. Adout**, S. Kang, A. Asatekin, A. M. Mayes, M. Elimelech

Chemical Evolution from Origins of Life to Modern Society

Origins and Evolution

Sponsored by CHED, Cosponsored by ENVR, GEOC, and ORGN

MONDAY EVENING

Section A

Ernest N. Morial Convention Center -- Hall A

Sci-Mix

G. Coimbatore, *Organizer*

8:00 - 10:00

123, 187, 192, 199, 201-202, 212, 241, 288. See subsequent listings.

TUESDAY MORNING

Section A

Ernest N. Morial Convention Center -- Rm. 235

Environmental Behavior and Fate of Manufactured Nanomaterials

Toxicity and Property

Cosponsored by ENGENV
J. A. Pedersen, *Organizer*
B. Xing, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —96. Tracing of engineered metal and oxide nanoparticles in soil and earthworms using neutron activation. **E. J. Joner**, T. Hertell-Aas, E. Pellicer, E. Mendoza, D. H. Oughton

9:00 —97. Effects of copper nanoparticles on the development of zebrafish embryos. W. Bai, H. Liu, **Z. Zhang**, Y. Zhao

9:25 —98. Hematological effects induced by subacute inhalation of silica nanoparticles. **Z. Chen**, T. Wang, H. Meng, G. Xing, H. Yuan, C. Zhang, C. Ye, F. Zhao, Z. Chai

9:50 —99. Inhibition of different nanomaterials on acetylcholinesterase. **Z -Y. Wang**, J. Zhao, D -M. Gao, F -M. Li, B. Xing

10:15 — Intermission.

10:30 —100. Aqueous solubility and octanol-water partition coefficient (K_{ow}) of C_{60}. P. P. Kulkarni, **C. T. Jafvert**

10:55 —101. Catalytic degradation of indigo dye by aqueous stable C_{60} aggregates. **B. Zhang**, J. D. Fortner, J. Lee, C -H. Huang, J. Kim, J. B. Hughes

11:20 —102. Changes in dispersion status and photochemical property of C_{60} in the aqueous phase by encapsulating agents. **J. Lee**, Y. Yamakoshi, J. B. Hughes, J -H. Kim

11:45 —103. Photochemical transformation of aqueous C_{60} clusters in sunlight. **W -C. Hou**, C. T. Jafvert

12:10 — Concluding Remarks.

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Drinking Water Disinfection and Disinfection Byproduct Management

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, D. Lantagne, L. Moeti, and E. A. Mintz, *Organizers*
B. J. Mariñas, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —104. Award Address (ACS Award for Creative Advances in Environmental Science and Technology, sponsored by Air Products and Chemicals, Inc). Water, water everywhere, but is it safe to drink? **S. D. Richardson**

9:15 —105. Induction of mammalian cell chronic cytotoxicity and acute genomic DNA damage by drinking water disinfection byproducts. **M. J. Plewa**, M. G. Muellner, S. D. Richardson, E. D. Wagner

9:35 —106. Development of normal human colon cell cultures to identify priority unregulated disinfection byproducts with a carcinogenic potential. **A. DeAngelo**, C. Jones, S -F. Thai, Y. Ge, M. Moyer

9:55 —107. Human toxicogenomic analysis of bromoacetic acid: A regulated drinking water disinfection byproduct. **M. G. Muellner**, M. E. Hudson, E. D. Wagner, M. J. Plewa

10:15 — Intermission.

10:30 —108. Metabolic activation of N-nitrosamine drinking water disinfection byproducts and their induction of genomic DNA damage in mammalian cells. **K -M. Hsu**, W. A. Mitch, E. D. Wagner, M. J. Plewa

10:50 —109. Evaluation of enhanced coagulation and chloramination for controlling DBPs in consecutive systems. **M. J. Sclimenti**, S. W. Krasner, Z. Chowdhury, C. Hill

11:10 —110. Selective detection and formation of highly polar brominated disinfection byproducts in drinking water. **X. Zhang**, G. Ding, J. W. Talley, B. Boggess

11:30 —111. Survey of nitrosamines in drinking water systems. **Y -Y. Zhao**, J. Boyd, M. Wagner, F. Qin, **Xing-F. Li**

11:50 —112. Evaluation of the adsorption–pyrolysis–titrimetric method for the measurement of drinking water total organic halogen. **Y. Li**, X. Zhang, C. Shang

Section C

Ernest N. Morial Convention Center -- Rm. 237

Membrane Technology for Water Treatment and Reuse

Advances in Membrane Materials and Membrane Science

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, D. G. Cahill, S. W. Hermanowicz, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
J. G. Georgiadis, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —113. Molecular dynamics simulation of reverse osmosis. **M. E. Suk**, A. V. Raghunathan, N. R. Aluru

8:55 —114. Binding of oxyanions to dendritic nanopolymers in aqueous solutions. **M. Diallo**, T. N. Shah, W. A. Goddard III

9:15 —115. Recovery of nitrate and sulfate from contaminated water by cross-flow dendrimer enhanced filtration. **T. N. Shah**, M. Diallo, W. A. Goddard III

9:35 —116. AFM force measurements as a tool for characterizing antifouling property of UF membranes containing poly(ethylene oxide) comb copolymer additives. **S. Kang**, A. Asatekin, A. M. Mayes, M. Elimelech

9:55 —117. Development of NF membrane based on rigid star amphiphiles. **T. Suzuki**, Y. Lu, M. Jiang, J. S. Moore, S. Granick, B. J. Mariñas

10:15 — Intermission.

10:30 —118. Preparation of nanofiltration membranes by chemical modification of P84 polyimide membranes using polyethylenimine. **C. Ba**, J. Economy

10:50 —119. Quantification of functional groups in FT30 (RO) membrane and modeling of their acid/base behavior. **O. Coronell**, X. Zhang, M. I. Gonzalez, D. G. Cahill, B. J. Mariñas

11:10 —120. Water vapor absorption in the polyamide active layer of reverse osmosis (RO) membranes. **X. Zhang**, D. G. Cahill, J. G. Georgiadis

11:30 —121. Concentration polarization disruption in reverse osmosis and nanofiltration processes. **J. Minier-Matar**, O. Coronell, B. Mi, B. J. Mariñas, C. V. Falkenberg, D. Chen, J. G. Georgiadis

11:50 —122. Electrical double layer on gold probed by static and dynamic force measurements using AFM. **Y. Wu**, M. A. Shannon

Chemical Evolution from Origins of Life to Modern Society

Chemistry Deciphers Evolution and Probes Nature

Sponsored by CHED, Cosponsored by ENVR, GEOC, and ORGN

Partnering for Innovation and Competitiveness: Opportunities for the Chemical Enterprise in Energy and Environment

*Sponsored by COMSCI, Cosponsored by ACS Committee on Science (COMSCI) and AIChE Management Division (Group 5), ACS Corporation Associates, BMGT, CHAL, PETR, SCHB, ENGENV, ENVR, PROF, CEPA, TECH, and JOINT**

TUESDAY AFTERNOON

Section A

Ernest N. Morial Convention Center -- Rm. 235

Black Carbon Measurements In Air, Water And Other Media

R. Edwards and R. Subramanian, *Organizers, Presiding*

1:30 — Introductory Remarks.

1:33 —123. Measurement of aerosol absorption amplification of coated particles using photothermal interferometry. **A. J. Sedlacek III**, J. Lee

1:58 —124. Photoacoustic analysis of aerosol light absorption and its relationship with black carbon mass concentration. **W. P. Arnott**, G. Paredes-Miranda

2:23 —125. Raman microspectroscopic analysis of soot structure and reactivity. **N. P. Ivleva**, M. Knauer, U. Pöschl, R. Niessner, C. Haisch

2:48 —126. Toward a standardized thermal-optical protocol for measuring atmospheric organic and elemental carbon: The EUSAAR protocol. **F. Cavalli**, J -P. Putaud

3:13 —127. Measurement of black carbon contents in soils, surface water sediments and groundwater sediments using chemical treatment, petrographic and thermal oxidation methods. **C. J. Werth**, Y. Yang, S. Jeong, B. Ligouis, M. Razzaque

3:38 — Intermission.

3:48 —128. Novel optical absorption approach for black carbon (BC) measurement in snow. **M. M. Shafer**, J. J. Schauer, M. Bergin

4:13 —129. Ultratrace analysis of black carbon in water by single particle intracavity laser-induced incandescence. **R. Edwards**, J. R. McConnell

4:38 —130. Pyrene fluorescence loss measurements of black carbon in seawater. **D. X. Flores-Cervantes**, C. M. Reddy, P. M. Gschwend

5:03 — Discussion.

5:28 — Concluding Remarks.

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Drinking Water Disinfection and Disinfection Byproduct Management

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, B. J. Mariñas, L. Moeti, and E. A. Mintz, *Organizers*
D. Lantagne, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —131. Household water treatment and safe storage for the developing world: New developments from the lab and the field. **M. D. Sobsey**

2:15 —132. Looming crisis in the world's freshwater supplies and availability, particularly in developing countries. **K. B. Bota**, M. A. Shannon

2:35 —133. Implementing water projects in developing countries: Addressing technical barriers to scaling-up. **D. Lantagne**

2:55 —134. SoChlor: A new point-of-use disinfection approach for the control of viral pathogens in ammoniacal waters. **M. A. Page**, B. J. Mariñas, J. L. Shisler

3:15 — Intermission.

3:30 —135. Deactivation of helminth eggs using solar-driven advanced oxidation processes coupled with free chlorine. L. González, J. L. García, B. Corona Vasquez, **E. R. Bandala**

3:50 —136. Mechanistic aspects of adenovirus inactivation by UV light and chlorine. **M. A. Page**, K. Sirikanchana, J. L. Shisler, B. J. Mariñas

4:10 —137. Antibacterial activity of a novel material system consisting of iron oxide and Ag nanoparticles on a fiberglass substrate. **G. N. Nangmenyi**, E. A. Mintz, X. Li, T. H. Nguyen, J. Economy

4:30 —138. Target of synthetic antimicrobial oligomer in bacterial membranes. **L. Yang**, V. Gordon, A. Som, J. E. Cronan Jr., G. N. Tew, G. C. L. Wong

4:50 —139. Disinfection of gram-negative and gram-positive bacteria using DYNAJETS® resonating cavitating jets. **G. A. Loraine**, G. L. Chahine, C -T. Hsiao

Ernest N. Morial Convention Center -- Rm. 237

Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, J. Farrell, C. J. Werth, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, and T. K. Das, *Organizers*
T. J. Strathmann, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —140. Oxidation processes in water treatment: Options and limitations for micropollutant elimination. **U. von Gunten**

2:15 —141. Assessing abiotic reduction of nitroaromatic groundwater contaminants in using compound-specific stable isotope analysis. **T. B. Hofstetter**, A. E. Hartenbach, A. Neumann, M. Sander, M. Berg, W. A. Arnold, C. J. Cramer, T. J. Strathmann, R. P. Schwarzenbach

2:35 —142. Polyoxometalate-enhanced oxidation of organic compounds by nanoparticulate zero-valent iron and ferrous ion. **C. Lee**, C. R. Keenan, D. L. Sedlak

2:55 —143. Ultrasonic irradiation for the destruction of aqueous PFOS and PFOA. **C. D. Vecitis**, H. Park, J. Cheng, B. Mader, M. R. Hoffmann

3:15 — Intermission.

3:30 —144. Oxidation of carbamazepine by permanganate and ferrate. **L. Hu**, O. Arce-Bulted, M. Sugihara, H. Martin, T. J. Strathmann

3:50 —145. Research progress in the use of potassium ferrate(VI) for oxidation of endocrine disruptors and pharmaceuticals in water. **V. K. Sharma**

4:10 —146. Advanced oxidative treatment of saline-impacted waters. **J. E. Grebel**, J. Pignatello, W. A. Mitch

4:30 —147. Validation of a quantitative structure-activity relationship as means to redesign an enzyme for enhanced pollutant degradation. **L. M. Colosi**, Q. Huang, W. J. Weber Jr.

4:50 —148. Total oxidative degradation of formulated chlorpyrifos using Fe-TAML and peroxide. A. Chanda, L. Espinosa-Marvan, **S. K. Khetan**, T. J. Collins

Chemical Evolution from Origins of Life to Modern Society

Evolutionary Ideas and Applications

Sponsored by CHED, Cosponsored by ENVR, GEOC, and ORGN

TUESDAY EVENING

Polymers for Remediation and the Environment

Sponsored by POLY, Cosponsored by ENVR and ENGENV

WEDNESDAY MORNING

Section A

Ernest N. Morial Convention Center -- Rm. 235

Sensors for Detection and Quantification of Contaminants in Drinking Water and the Environment

Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ANYL, and ENGENV
E. Morgenroth and D. T. Chiu, *Organizers*
P. W. Bohn, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —149. New analytical techniques and their potential application toward the quantification of contaminants in drinking water. **D. T. Chiu**

9:15 —150. Enzymatic reactivity in geometrically confined spaces. **Z. Wang**, P. W. Bohn

9:35 —151. Preconcentrating minicolumn sensors: A new concept for trace environmental sensing. **J. W. Grate**, M. J. O'Hara, O. B. Egorov

9:55 —152. Quantifying pCBA radical chemistry: Kinetics and mechanisms of hydroxylated product formation and decay. **S. P. Mezyk**, D. Doud, F. L. Rosario-Ortiz, B. Vanderford, S. Snyder

10:15 — Intermission.

10:30 —153. Nanostructured smart membranes for microbial sensing. **C. L. Gruden**, G. Cai, C. Gorey, I. Escobar

10:50 —154. Pseudopolarographic determination of Cd^{2+}, Pb^{2+}, and Cu^{2+} complexes found in sewage treatment plant (STP) effluent. T. F. Rozan, **I. D. Clark**

11:10 —155. SERS-based method for pathogen monitoring in drinking water. **K. Rule**, P. J. Vikesland

11:30 —156. Detection of low molecular weight contaminants with a field-portable immunosensor. **S. J. Melton**, E. A. James, M. B. Henry, H. Yu, D. A. Blake

11:50 —157. Microfluidic/nanofluidic sensors using catalytic DNA for heavy metal detection. **T. S. Dalavoy**, J. V. Sweedler, P. W. Bohn, Y. Lu, M. A. Shannon, D. Cropek

Section B

Ernest N. Morial Convention Center -- Rm. 236

Advances in Drinking Water Disinfection and Disinfection Byproduct Management

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
B. J. Mariñas, E. Morgenroth, D. Lantagne, and L. Moeti, *Organizers*
E. A. Mintz, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —158. Reduction of NDMA formation potential and direct NDMA formation during ozonation: A contradiction? **U. von Gunten**, C. Lee, C. K. Schmidt, W. A. Arnold

8:55 —159. Amino acid disinfection byproducts: Insights into formation, isolation and toxicity. **S. S. Walse**, W. A. Mitch

9:15 —160. Enhanced chlorination and disinfection byproduct formation of organic contaminants by tertiary amines. **A. D. Shah**, J -H. Kim, C -H. Huang

9:35 —161. Benzalkonium chloride: An abundant precursor to NDMA in chlorinated drinking water. **S. S. Walse**, W. A. Mitch

9:55 —162. Free radical chemistry of the mono- and dihalonitromethanes. **W. J. Cooper**, S. P. Mezyk, S. K. Cole, B. J. Mincher, P. R. Gardinali

10:15 — Intermission.

10:30 —163. Photocatalytic inactivation of viruses using titanium dioxide nanoparticles and low-pressure UV light. **D. W. Gerrity**, H. Ryu, M. Abbaszadegan, J. C. Crittenden

10:50 —164. Palladium-modification of nitrogen-doped titanium oxide for enhanced visible-light photocatalytic activity. **Q. Li**, Y. W. Li, R -C. Xie, M. A. Page, R. Jinks, B. J. Mariñas, E. A. Mintz, J. Economy, J -K. Shang

11:10 —165. Deactivation of MS2-coliphage with nanostructured Ta_2O_5-SiO_2. **W. N. Harris III**, N. Ndiege, R. Chandrasekharan, S. Mehrabi, M. A. Shannon, T. H. Nguyen, E. A. Mintz

11:30 —166. Adsorption kinetics of bacteriophage MS2 on silica surface coated with natural organic matter. **T. H. Nguyen**, B. Yuan, H. Lee

11:50 —167. Role of ionic strength on deposition kinetics of *Cryptosporidium parvum* oocysts to natural organic matter. **Y. Liu**, M. S. Kuhlenschmidt, T. B. Kuhlenschmidt, T. H. Nguyen

Section C

Ernest N. Morial Convention Center -- Rm. 237

Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, T. J. Strathmann, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
C. J. Werth, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —168. Residual antibacterial activity of photolytically- and photocatalytically-treated aqueous solutions of the antibacterial agent ciprofloxacin. **T. Paul**, M. C. Dodd, U. von Gunten, T. J. Strathmann

8:55 —169. Effects of water parameters on the degradation of microcystin-LR under solar light-activated TiO_2 photocatalysts. M. Pelaez, M. G. Antoniou, H. Choi, A. A. de la Cruz, J. A. Shoemaker, **D. D. Dionysiou**

9:15 —170. Photocatalytic activity of Ta_2O_5 photocatalysts decorated on SiO_2 nanoparticles. **R. Chandrasekharan**, N. Ndiege, B. Bambgoye, W. N. Harris III, J. Lucido, A. Radadia, M. A. Shannon, R. I. Masel

9:35 —171. Novel ammonium/ammonia removal techniques. **G. L. Pepping**, M. A. Anderson, T. P. Barry

9:55 —172. Effect of adsorbed polyelectrolyte and humic acid on TCE dechlorination by Fe^0/Fe-oxide nanoparticles. **G. V. Lowry**, T. Phenrat, Y. Liu, H -J. Kim, R. D. Tilton

10:15 — Intermission.

10:30 —173. Molecular-level simulation of aqueous NDMA reduction at metal surfaces. **W. F. Schneider**, V. A. Ranea

10:50 —174. Characterization of colloid-derived Pd-Cu/Al_2O_3 catalysts for nitrate reduction. **K. A. Guy**, J. R. Shapley, C. J. Werth, Z. Liu, J. C. Yang, Q. Wang, A. I. Frenkel

11:10 —175. Effect of solution conditions on the product distribution of catalytic nitrate reduction using Pd-In catalysts in a continuous-flow packed-bed reactor. **B. P. Chaplin**, J. R. Shapley, C. J. Werth

11:30 —176. Sustainability of nickel-boron catalysts for aqueous phase treatment of *N*-nitrosamines. **A. J. Frierdich**, C. E. Joseph, T. J. Strathmann

11:50 —177. Ligand effects on the catalytic reduction of perchlorate with supported Re(V) complexes. **K. D. Hurley**, J. R. Shapley

WEDNESDAY AFTERNOON

Section A

Ernest N. Morial Convention Center -- Rm. 235

Sensors for Detection and Quantification of Contaminants in Drinking Water and the Environment

Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ANYL, and ENGENV
E. Morgenroth and P. W. Bohn, *Organizers*
D. T. Chiu, *Presiding*

1:30 — Introductory Remarks.

1:35 —178. Detecting pathogens in water by electrochemical immunoassay. **W. R. Heineman**, A. Jurkevica, H. B. Halsall, C. J. Seliskar

2:15 —179. Microfabrication techniques for the development of a miniaturized Hg-free ASV sensor for drinking water. **L. Sztaberek**, M. D. Martin, R. P. Baldwin, T. Roussel Jr., R. Keynton, N. John, K. Walsh

2:35 —180. Temperature independent lead sensing based on a fluorescent DNAzyme sensor. **N. Nagraj**, J. Liu, J. Wu, Y. Lu

2:55 —181. Synthetic glycoconjugates for the precise detection of toxins and pathogens. **S. S. Iyer**, R. R. Kale, D. M. Hatch, C. McGannon, C. Fuller-Schaefer, A. Jurkeva, M. J. Flagler, H.

B. Halsall, W. R. Heineman, A. A. Weiss

3:15 — Intermission.

3:30 —182. Hierarchical oligonucleotide primer extension (HOPE) for quantitative and qualitative analyses of biotic contaminants. **P -Y. Hong**, W -T. Liu

3:50 —183. DNAzyme-based biosensors for colorimetric sensing of trace contaminants in the environment. **Y. Lu**, G. Lu, D. Mazumdar, J. H. Lee, Z. Wang, J. Liu

4:10 —184. Effect of electrolyte properties on charge transfer at a monolayer modified electrode. **C. Gupta**, M. A. Shannon, P. J. A. Kenis

4:30 —185. Pb^{2+} detection in hybrid nano/microfluidic device utilizing DNAzymes immobilized on gold-coated nanocapillary array membrane. **A. Piruska**, Y. Lu, P. W. Bohn

4:50 —186. Simultaneous ultrasensitive detection of heavy metals using chelate-functionalized carbon nanotube-modified electrodes. **J. Morton**, A. K. Wanekaya

Section B

Ernest N. Morial Convention Center -- Rm. 236

Understanding the Water Footprint of Energy Production from Conventional and Alternative Sources

Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9) and ENGENV
E. Morgenroth, M. Hightower, J. McMahon, and M. A. Shannon, *Organizers*
R. Sustich, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —187. Water implications of biofuels production in the United States. **J. L. Schnoor**

2:15 —188. Solar-powered hydrogen production via water splitting with simultaneous water treatment. **H. Park**, C. D. Vecitis, M. R. Hoffmann

2:35 —189. Future water challenges of a hydrogen economy. **R. White**, S. Yeh, N. Goldstein

2:55 —190. Carbon and energy footprint of water reclamation and waterway management in greater Chicago. **C. A. O'Connor**

3:15 — Intermission.

3:30 —191. Estimating freshwater needs to meet future thermoelectric generation requirements:

A DOE/NETL assessment. **T. J. Feeley III**, E. Shuster, J. Murphy

3:50 —192. Water consumption in an IGCC plant for cogeneration of hydrogen and power. **S. A. Dastgheib**, Y. Lu, M. Rostam-Abadi, M. A. Shannon

4:10 —193. Feasibility of using secondary-treated municipal wastewater as cooling water in energy generation. **S -H. Chien**, M -K. Hsieh, D. A. Dzombak, R. Vidic

4:30 —194. Water use reduction opportunities in ethanol production. **T. C. Lindsey**

Section C

Ernest N. Morial Convention Center -- Rm. 237

Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
C. J. Werth, E. Morgenroth, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
T. J. Strathmann, *Organizer, Presiding*

1:30 — Introductory Remarks.

1:35 —195. Reductive defluorination of perfluorinated chemicals by aqueous electron. **H. Park**, C. D. Vecitis, J. Cheng, B. Mader, M. R. Hoffmann

1:55 —196. Reductive dechlorination of carbon tetrachloride in iron- and sulfate-reducing microcosms. **H. Shao**, E. C. Butler

2:15 —197. Reductive dehalogenation of trichloroethylene using aerosol-assisted Fe/Silica particles. **J. Zhan**, T. Zheng, G. Piringer, C. Day, J. He, G. L. McPherson, Y. Lu, V. T. John

2:35 —198. Abiotic reduction of organic contaminants by iron(II)-siderophore complexes. **D. Kim**, T. J. Strathmann, O. Duckworth

2:55 —199. Effects of methyl orange on nitrate reduction by a Pd-In/γ-Al_2O_3 catalyst. **D. Shuai**, S. Wojnar, B. P. Chaplin, J. R. Shapley, C. J. Werth

WEDNESDAY EVENING

Section A

Ernest N. Morial Convention Center -- Hall A

General Papers

G. Coimbatore, *Organizer*

6:00 - 8:00

200. Biomedical imaging gold nanoparticles: Transformation in surface water conditions. **V. Pallem**, H. Stretz, M. J. M. Wells

201. Experimental study on pretreatment of Yellow River micropolluted raw water quality by subsurface constructed wetlands. **X. Yang**, **S. Yu**, X. Xu, Y. Zhao, X. Yan, H. Zhang

202. Research of polysilicate-ferric(PSF) for treating low temperature and low turbidity raw water. **X. Xu**, **S. Yu**, Z. Jiang

203. Study on MTBE degradation by *Methylibium petroleiphilum*. **J. Zhang**, D. Chen, Z. Cheng, X. Chen, J. Chen

204. Acid rain at City of Gangneung in South Korea. **J. Y. Lee**, M. Han, J. Choi, J -S. Yang

205. Adsorption of 2,4,6-trinitrotoluene from aqueous solutions using untreated and pyrolized tire rubber. **N. Granda-Paz**, **S. P. Hernandez**, **L. Granda-Marulanda**, **A. Torres-Fontan**, **I. Otero**

206. Adsorption of heavy metal using treatment agents for acid mine drainage. **J. Choi**, J -S. Yang, J -Y. Lee, J. Ham

207. Analysis and evaluation of environment benefit for biomass-fired power generation. **J. Lu**

208. Atmospheric gas phase hydrogen peroxide determination using acridinium ester chemiluminescence. **D. W. O'Sullivan**, H. Shen, J. A. Snow, A. Higbie, B. G. Heikes

209. Bicarbonate utilization by freshwater microalgae *Microcystis aeruginosa* and *Scenedesmus quadricauda*. Y. Zhong, L. Sun, **Y -Y. Zhuang**

210. Catalytic ozonation of Songhua River water by nano-TiO_2/zeolite. **S. Wang**, J. Ma, Y. Yang, J. Zhang, T. Liang

211. Characterization of nonaqueous phase liquid blob volume and morphology in soil columns using a medical X-ray CT scanner. **S. Ghoshal**, S. Kashef-Haghighi

212. Chelate-functionalized polymer nanoparticles for the efficient and selective removal of heavy metals from water. **S. Tolani**, A. K. Wanekaya

213. Development, validation and application of LCMS/MS method for simultaneous detection

of hydroxyl metabolites of polycyclic aromatic hydrocarbon in urine of exposed subjects. **F. O. Onyemauwa**, S. Waidyanatha, J. Sobus, S. M. Rappaport

214. Disruption of the MazEF protein complex: A novel antibacterial target. **N. R. Wang**, P. J. Hergenrother

215. Distribution and dynamics of nitrate-nitrogen as influenced by long-term nitrogen fertilizer application and irrigation method in an Alfisol cropped to cotton. J. S. McConnell, **K. M. Riha**, C. J. Altfillisch, S. L. Bilderback, M. T. Brink, L. A. Maness, S. M. Stenger

216. Dynamics of phytoplankton in relation to aquatic habitat factors in a polluted shallow water body in Tianjin City, China. **Y. Zhi**, X. Jin, L. Sun

217. Effect of pH on Fenton and Fenton-like reactions. **Y -H. Kim**, S -O. Ko, W. S. Shin, S. J. Choi, Y. S. Jung, H. S. Oh, J -Y. Park

218. Effect of soil sorption and aquatic natural organic matter on the antibacterial activity of a fullerene water suspension. **D. Li**, D. Y. Lyon, Q. Li, P. J. Alvarez

219. Effects of solid retention time on performance and sludge characteristics in EBPR. N. Li, **N. Ren**, X. Wang

220. Extraction and analysis of C_{60}, C_{70}, and PCBM in aqueous suspensions. **D. Bouchard**, X. Ma

221. Formation kinetics of aqueous suspensions of fullerenes. X. Ma, **D. Bouchard**

222. Formation and persistence of cadmium sulfide nanoparticles in aqueous solutions under various conditions: Limiting particle growth and aggregation with thiols. **K. M. Mullaugh**, J. M. Spraggins II, D. P. Ridge, G. W. Luther III

223. Henry's Law constant determination of volatile organic compounds (VOC) in cyclodextrin solutions using the static head-space method. **H. Gao**, W. J. Blanford

224. Influence of sediment geochemistry on internal phosphorus loading in four Wisconsin lakes. **A. R. Hoffman**, D. E. Armstrong, R. C. Lathrop

225. Inhibition of five nanomaterials on coliphage growth. F -M. Li, N -N. Zhang, Z -Y. Wang, **S -H. Qin**, B. Xing

226. Inhibition of the lytic function of human natural killer cells by the brominated flame retardants, hexabromocyclododecane and tetrabromobisphenol A. **K. Stephen**, M. M. Whalen

227. Investigation of quinones as biomarkers for exposure to air pollution. **D. Lim**, A. Ikeda, T. Tyner, A. S. Hasson

228. Kinetic analysis of MTBE-biodegradation by immobilized cells. Z. Cheng, **J. Chen**, D. Chen, X. Chen, J. Zhang

229. Kinetic studies for the adsorption of heavy metals on sawdust particles. **S -O. Ko**, Y. H. Kim, L. Kim

230. LC/MS/MS structure elucidation of reaction intermediates formed during the photocatalytic degradation of microcystin-LR. M. G. Antoniou, J. A. Shoemaker, A. A. de la Cruz, **D. D. Dionysiou**

231. Levels, trends and sources of polybrominated diphenyl ethers in Hudson River basin sediments. **L. A. Benedict**, R. F. Bopp, D. A. Chaky, S. N. Chillrud

232. Micrototal analysis system for monitoring waterborne pathogen. **C. K. Yong**, I. K. Lao, R. Murthy, H. M. Ji, C. Y. Teo, C. Lay, H. H. Feng, W. T. Liu

233. Nanoscale palladium doping on magnesium particles for PCB dechlorination: Evaluation of critical parameters in bimetallic synthesis. **S. Agarwal**, S. R. Al-Abed, D. D. Dionysiou

234. New hybrid organic/inorganic sorbents for immobilization of heavy metals in sludges. **A. N. Vasiliev**, L. V. Golovko, V. A. Povazhny, V. V. Trachevsky, J. G. Khinast

235. Oxidation kinetics of sulfite catalyzed by ferrous ions. **W. Lidong**

236. Photolytic degradation pathways of flumetsulam, nicosulfuron and imazethapyr. **A. Nienow**, E. Pelton, M. Richards

237. Preparation of copper-impregnated nitrogen-doped nanostructured TiO_2 and its applications to photocatalytic disinfection. **O. Katembo Kinda**, E. A. Mintz, S. Mehrabi

238. Probing dissolved organic matter's mechanisms of photodegradation. **D. Kreller**, B. Anderson

239. Reactive Fe/Pd bimetallic systems-impregnated adsorptive activated carbon for the environmental risk management of contaminated sites. **H. Choi**, S. Agarwal, D. D. Dionysiou, S. R. Al-Abed

240. Removal of microcystin-LR by ultraviolet radiation and hydrogen peroxide oxidation. **H. Li**, X -C. Jin, R -P. Qiao

241. Removal of uranium from groundwater using different types of synthetic and natural hydroxyapatite material. **S. R. Kanel**, M. O. Barnett, T. P. Clement

242. Soluble Fe and Mn flux at the sediment-water interface during hypolimnetic oxygenation of a stratified water supply reservoir. **H. Hsu-Kim**, N. Polishchuk, L. Bryant, J. C. Little

243. Structural identification of adducts from interactions of guanosine with agrochemicals. **T. C. Andrade**, D. W. Boerth, C. L. Schifone

244. Synergetic reaction pathways of fluoroquinolone antibiotics and metals: Roles of metal-fluoroquinolone complexes and clay mineral surfaces. A. L. Danberry, H. J. Wingen, **T. P. Vorlicek**

245. Synthesis, characterization and photoactivity studies of nitrogen-doped Ta_2O_5 decorated onto SiO_2 nanoparticles. **B. Bamgboye**, J. Lucido, R. Chandrasekharan, N. Ndiege, E. Moscoso, L. Threatt, M. A. Shannon, R. I. Masel

246. Transformation of triclosan and triclocarban in soils and biosolids-applied soils. **J -W. Kwon**, K. Xia, K. L. Armbrust

247. Visible light-mediated titania alumina composites: Synthesis and photocatalytic disinfection properties under visible light and UV irradiation. **L. Liao**, E. A. Mintz, S. Mehrabi

248. Wastewater treatment with titanium dioxide photocatalysts. **T. Zeng**, N. A. Robert, L. P. Van Hoose, Y -F. Li, A. Ernest, R -F. Xu, H. Ma

Section B

Ernest N. Morial Convention Center -- Hall A

Environmental Behavior and Fate of Manufactured Nanomaterials

Cosponsored by ENGENV
B. Xing, *Organizer*
J. A. Pedersen, *Organizer, Presiding*

6:00 - 8:00

249. Production of reactive oxygen species from zero-valent iron nanomaterials. Q. Sun, **S. E. Mylon**, T. D. Waite

250. Tannic acid stabilizes carbon nanotubes in water. N. Liu, **D. Lin**, B. Xing

251. Interaction of polymerin with aluminum oxide nanoparticles for potential water remediation. **M. Iorio**, B. Pan, R. Capasso, B. Xing

252. Transmembrane delivery of aggregated $[Gd@C_{82}(OH)_{22}]_n$ nanoparticles. **G. Xing**, H. Meng, C. Zhen, H. Yuan, L. Jing, Y. Zhao

253. $Gd@C_{82}(OH)_n$ nanoparticles are noncytotoxic and can induce cellular immunity. Y. Liu, Y. Qiu, W. Li, F. Lao, **C. Chen**, **Y. Zhao**

254. Iron oxide nanoparticles induced dysfunction and cytotoxicity in human endothelial cells. M -T. Zhu, **W. Feng**

255. In vitro assay for assessing the gastrointestinal biodurability of engineered nanomaterials. **P. N. Wiecinski**, K. M. Metz, R. J. Hamers, J. A. Pedersen

Section C

Ernest N. Morial Convention Center -- Hall A

Advances in Adsorption Processes for Drinking Water Treatment and Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, T. H. Nguyen, and D. R. U. Knappe, *Organizers*
R. A. Hathaway, *Presiding*

6:00 - 8:00

256. Chromium biosorption by *Erythrina variegata orientalis* leaf powder. **P. Venkateswarlu**, N. Chitti Babu, G. V. S. Aditya

Section D

Ernest N. Morial Convention Center -- Hall A

Membrane Technology for Water Treatment and Reuse

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, D. G. Cahill, S. W. Hermanowicz, J. G. Georgiadis, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
R. A. Hathaway, *Presiding*

6:00 - 8:00

257. Using of modified tube membranes in the integrated reactor for degradation of persistent organic pollutants in water. **V. Covaliov**

258. Are microbial flocs in membrane bioreactors more sensitive to nitrification inhibition compared to flocs in conventional activated sludge systems? **N. J. Wiehardt**, A. L. Menniti, E. Morgenroth

259. Solvent resistant polyacrylonitrile membranes. **J. Wang**, Z. Yue, J. Economy

Ernest N. Morial Convention Center -- Hall A

Advances in Drinking Water Disinfection and Disinfection Byproduct Management

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, B. J. Mariñas, D. Lantagne, L. Moeti, and E. A. Mintz, *Organizers*
R. A. Hathaway, *Presiding*

6:00 - 8:00

260. Comparative mammalian cell chronic cytotoxicity of cyanogen halide drinking water disinfection byproducts. **J. Wallace**, J. Pals, E. D. Wagner, B. J. Mariñas, M. J. Plewa

261. Induction of genomic DNA damage in mammalian cells by cyanogen halide drinking water disinfection byproducts. **J. Pals**, J. Wallace, E. D. Wagner, B. J. Mariñas, M. J. Plewa

262. Characterization of THMs precursors by fractionation of natural organic matter and UV absorption. **K. Punburananon**, T. F. Marhaba, A. D. Borgaonkar

263. Principal component analysis model for predicting organic character of water using spectral fluorescent signature. **A. D. Borgaonkar**, T. F. Marhaba, K. Punburananon

264. Measurement of diffusion coefficients for bacteriophage MS2 in solutions and at solid-liquid interface: A fluorescence correlation spectroscopy study. Y. Yu, M. Jiang, **T. H. Nguyen**, S. Granick

265. Effect of corrosion scales on ClO_2 decay in drinking water. **Z. Zhang**, J. Stout, R. Vidic

266. Improving point-of-use disinfection methods for use in developing regions. **T. Vonder Haar**, A. L. Poole, D. I. Al-Qadi, K. M. Flanagan, B. J. Finnegan, S. Y. Kimura, J. Minier-Matar, J. Luh, J. L. Shisler, B. J. Mariñas, M. A. Page

267. Comparative study of the kinetics of MS2 bacteriophage and Coxsackievirus B5 inactivation with monochloramine. **B. J. Finnegan**, J. L. Shisler, B. J. Mariñas

268. Inactivation of bacteriophage MS2 by potassium ferrate(VI). **L. Hu**, M. A. Page, B. J. Mariñas, T. J. Strathmann

269. Iron(III) chloride mediates inter-Qbeta bacteriophage interactions. **N. W. Schmidt**, S. Barr, E. Luijten, G. C. L. Wong

270. Design of viricidal, metal oxide nanoparticles coated on a glass fiber substrate. **X. Li**, L. A. Gutierrez, G. N. Nangmenyi, T. H. Nguyen, J. Economy

271. Study of sorption and inactivation of ms2 phage and rotavirus using iron oxide-coated glass fiber. **L. A. Gutierrez**, X. Li, J. Wang, G. N. Nangmenyi, J. Economy, T. B. Kuhlenschmidt, M. S. Kuhlenschmidt, T. H. Nguyen

272. DNA damage and repair kinetics in mammalian cells by reactants, intermediates and products associated with the reaction of combined chlorine and formaldehyde in drinking water. **Y. Kumada**, S. Y. Kimura, B. J. Mariñas, E. D. Wagner, M. J. Plewa

273. Fast detection and formation of polar-iodinated disinfection byproducts in drinking water. **G. Ding**, X. Zhang

274. On-line membrane extraction for real-time monitoring of haloacetic acids. D. Kou, X. Wang, **S. Mitra**

275. Competitive formation of ClCN and BrCN in drinking water. **S. Y. Kimura**, Y. Kumada, B. J. Mariñas, M. J. Plewa

276. Free-radical-based destruction of nitrosamines in waters. **S. P. Mezyk**, N. A. Landsman, C. R. Cox, K. L. Swancutt, E. Abud, J. J. Kiddle

277. Formation, detection and removal of *n*-nitrosodimethylamine in drinking water treatment process. A. Li, **Z. Chen**, L. Yang, B. Xu, S. Yin

278. Simultaneous removal of DBPs and odorants by UV/H_2O_2 process. **C -H. Jo**, A. M. Dietrich, J. M. Tanko

279. Disinfection by-products in swimming pool water: Precursors and chemical reactions of NCl_3 formation. **C. Zwiener**, C. Schmalz, F. H. Frimmel

280. Advances in ammonia oxidation chemistry: The breakpoint reaction revisited. **S. B. Rivera**, W. L. Bradford

281. Efficient natural organic matter removal using ammonia activated carbon fibers. **G. N. Nangmenyi**, Z. Yue, J. Economy

282. Effect of the pH, inorganic ions and the wavelength on photocatalytic antiviral and antibacterial activities of TiO_2 toward elucidation of the chemistry of the action. **S. Mehrabi**, C. Barrett, C. Thomas, J. Watson, B. Gray, E. A. Mintz

Section F

Ernest N. Morial Convention Center -- Hall A

Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection

*Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ENGENV, and JOINT**
E. Morgenroth, T. J. Strathmann, C. J. Werth, N. M. Assaf-Anid, J. A. Bergendahl, M. E. Ternes, R. W. Pike, R. W. Peters, and T. K. Das, *Organizers*
R. A. Hathaway, *Presiding*

6:00 - 8:00

283. Electrical discharge plasma reactors for water cleaning. **B. R. Locke**

284. Catalytic reductive dechlorination of *o*−chlorophenol by Ni/Fe bimetal particles in water. **J. Jin**, J. Yan

285. Degradation of polyacrylamide aqueous solution by heterogeneous photo-Fenton reaction. **H. You**, **T. Liu**

286. Degradation of polyacrylamide aqueous solution by UV/H_2O_2/O_3 process. **T. Liu**, **H. You**, H. Luo, M. Wang

287. Degradation of trace nitrobenzene by ozone with TiO_2/zeolite. **J. Zhang**, **J. Ma**, **Y. Yang**, **S. Wang**, **L. Chen**

288. Effects of natural water constituents on perchlorate reduction by a heterogeneous Pd/Re catalyst. **J. K. Choe**, L. Koscielski, C. J. Werth, T. J. Strathmann, J. R. Shapley

289. Reduction of azide in water with dihydrogen over heterogeneous Pd-Cu/Al_2O_3 catalysts. **M. F. Fanizza**, K. A. Guy, C. J. Werth, J. R. Shapley

290. Decolorization processes for wastewater containing nitro-group compounds. **F -F. Zhang**, **J. Zhang**, W -H. Chen, M -H. Cao

Section G

Ernest N. Morial Convention Center -- Hall A

Sensors for Detection and Quantification of Contaminants in Drinking Water and the Environment

Cosponsored by WaterCAMPWS, ACS Division of Environmental Chemistry, and AIChE Environmental Division (Group 9), ANYL, and ENGENV
E. Morgenroth and P. W. Bohn, *Organizers*

6:00 - 8:00

291. Molecular association of benzene with a new cyclophane receptor. **T. Buthelezi**, C. Davies

General Geochemistry and Clay Minerals Society Poster Session

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THURSDAY MORNING

Polymers for Remediation and the Environment

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THURSDAY AFTERNOON

Polymers for Remediation and the Environment

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