

HUMIC SCIENCE & TECHNOLOGY SIXTEEN
Premier Humic Science

Raytheon Amphitheater, Egan Research Center
Northeastern University, Boston, Massachusetts, USA

Wednesday March 20 to Thursday March 21, 2013

WEDNESDAY, MARCH 20

8:00 *Breakfast*

Welcome and Opening Ceremony

G. Davies and E.A. Ghabbour, Presiding

8:30 Welcome by Michael Armini, Senior Vice President for External Affairs, Northeastern University. Recognition of Honorary Chair Professor Patricia A. Maurice, University of Notre Dame, Past Honorary Chairs, Distinguished Guests and the Conference Dedicattee, Professor Stephen E. Cabaniss, University of New Mexico, USA.

Remarks and Plenary Session

P. Maurice, Presiding

8:50 BIOAVAILABILITY OF METALS ASSOCIATED WITH AQUATIC HUMIC SUBSTANCES

P.A. Maurice, K. Koehn, L. Neubauer, F. von der Kammer, Department of Civil Engineering & Geological Sciences, University of Notre Dame, Notre Dame, IN, USA; Department of Environmental Geosciences, University of Vienna, Vienna, Austria

9:20 MOLECULAR-LEVEL MODELING OF TRACE METAL BINDING BY HUMIC SUBSTANCES

S. Cabaniss, Department of Chemistry and Chemical Biology, The University of New Mexico, Albuquerque, NM, USA

9:50 *Break*

Aqueous Interfaces

J.A. Leenheer, Presiding

10:10 ANALYZING THE EFFECTS OF ALGAE ON WATER TREATMENT PLANTS THROUGH THE USE OF FLUORESCENCE SPECTROSCOPY

R. Archuleta, D. McKnight, University of Portland, Civil and Environmental Engineering, Portland, OR; University of Colorado Boulder, INSTAAR, Boulder, CO 80309, USA

10:40 TRACING THE BIOGEOCHEMICAL PROCESSING OF WATER-SOLUBLE SOIL ORGANIC MATTER IN A FIRST ORDER STREAM

R.S. Gabor, D.M. McKnight, Environmental Studies and Water Resources Engineering; Civil, Environmental and Architectural Engineering, INSTAAR, University of Colorado, Boulder, CO, USA

11:10 THE ROLE OF ORGANIC MATTER COMPOSITION AND ARRANGEMENT AT THE AQUATIC INTERFACES OF GEOSORBANTS

R.L. Cook, Department of Chemistry, Louisiana State University, Baton Rouge, LA, USA

11:40 EXTRACTED HUMIC ACID DOES NOT REPRESENT THE COMPOSITION OF CLAY BOUND SOIL ORGANIC MATTER

S. Oufqir, P. Bloom, B. Toner, P. Hatcher, Department of Chemistry, Faculty of Science, University Mohammed V-Agdal, Rabat, Morocco; Department of Soil, Water and Climate, University of Minnesota, St. Paul, MN, Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, VA, USA

12:10 Lunch, Curry Student Center

Sorption

D. Amarasiriwardena, Presiding

13:40 USING TIPPING'S METHOD TO TRACK ADSORPTION AND FRACTIONATION IN LIQUID CHROMATOGRAPHIC STUDIES OF DISSOLVED ORGANIC MATTER INTERACTION WITH ADSORBENTS

D. Kreller, Y. Wu, R. Joyce, S. Sutton, Department of Chemistry; Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA, USA

14:10 DISSOLVED NATURAL ORGANIC MATTER REMOVAL BY NEW CARBONACEOUS SORBENTS

P. Larese-Casanova, N. Cai, Department of Civil and Environmental Engineering, Northeastern University, Boston, MA, USA

14:40 SPATIAL AND TEMPORAL CHANGES IN THE QUANTITY AND QUALITY OF PRAIRIE POTHOLE LAKES BENTHIC PORE WATER DISSOLVED ORGANIC MATTER (DOM)

K. Ziegelgruber, T. Zeng, W.A. Arnold, Y.-P. Chin, School of Earth Sciences, The Ohio State University, Columbus, OH; Dept. of Civil Engineering, The University of Minnesota, Minneapolis, MN; Dept. of Chemical and Environmental Engineering, Yale University, New Haven, CT, USA

15:10 Break

Analysis and Biochemistry

P. Larese-Casanova, Presiding

15:30 FACT OR ARTIFACT: THE REPRESENTATIVENESS OF ESI-MS FOR COMPLEX NATURAL ORGANIC MIXTURES

A.C. Stenson, E.N. Capley, N.R. Novotny, E.V. Osilla, Chemistry Department, University of South Alabama, Mobile, Alabama, USA

16:00 CARBOXYLIC ACID CONTENT AND pK_A DISTRIBUTION FOR DISSOLVED ORGANIC MATTER THAT WAS ISOLATED BY THE COUPLED REVERSE OSMOSIS/ELECTRODIALYSIS METHOD FROM PRISTINE AND OIL-IMPACTED SITES IN BARATARIA BAY, LOUISIANA

Y. Zhang, N. Green, R.L. Cook, T. Bianchi, E.M. Perdue, School of Earth and Atmospheric Sciences; School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, Georgia; Department of Chemistry, Louisiana State University, Baton Rouge, LA; Department of Oceanography, Texas A&M University, College Station, TX; Department of Chemistry, Ball State University, Muncie, Indiana, 47306, USA; State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, P. R. China

16:30 THE ROLE OF HUMIC ACIDS AND NATURAL ORGANIC MATTER ON THE POTENTIAL OF THREE LIGNINOLYTIC FUNGI TO REMOVE PHENOLIC ENDOCRINE DISRUPTORS FROM WATERS AND SEDIMENTS

E. Loffredo, G. Castellana, A. Traversa, N. Senesi, Department of Soil, Plant and Food Sciences, University of Bari, Bari, Italy

17:00 *Group Photograph. Adjourn for Reception at 17:30 – 19:00 in 440 Egan Center*

THURSDAY, MARCH 21

8:00 *Breakfast*

Biochemistry, Photoprocesses

E. Cram, Presiding

8:30 HUMIC DERIVED COMPOUNDS DEMONSTRATE ANTIRETROVIRAL AND ANTIBACTERIAL PROPERTIES

A. Bruccoleri, C. Langford, U. Chamoli, Civil Engineering; Chemistry Department, University of Calgary, Calgary, Alberta, Canada

9:00 HUMIC SUBSTANCES AND ANTIBIOTICS: HOW DOES A NON-TARGET ORGANISM RESPOND?

C.E.W. Steinberg, S. Liu, J. Witczak, R. Menzel, N. Saul, Laboratory of Freshwater & Stress Ecology, Faculty of Mathematics and Natural Sciences; Institute of Animal Sciences, Faculty of Agriculture and Horticulture, Humboldt-Universität zu Berlin, Germany

9:30 INVESTIGATION OF PHOTO-EXPOSURE ON OPTICAL PROPERTIES OF DISSOLVED ORGANIC MATTER (DOM) SIZE FRACTIONS

K.M. Cawley, R. Jaffe, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, Boulder, CO; Department of Chemistry and Biochemistry, Florida International University, Miami, FL, USA

10:00 *Break*

Photoprocesses

M. De Nobili, Presiding

10:20 IMPACT OF HALIDES ON THE PHOTOPRODUCTION OF REACTIVE OXYGEN SPECIES FROM ORGANIC MATTER

C.M. Glover, F.L. Rosario-Ortiz, Department of Civil, Environmental, and Architectural Engineering, University of Colorado-Boulder, Boulder, CO, USA

10:50 CHARACTERIZING THE INTERACTION BETWEEN URANYL ION AND FULVIC ACID USING A FLUORESCENCE QUENCHING METHOD AND REGIONAL INTEGRATION ANALYSIS (RIA)

B. Zhu, D. Ryan, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, USA

11:20 WETLAND PHOTOCHEMISTRY AS A MAJOR CONTROL ON THE TRANSPORT OF METALS IN AN ACID MINE DRAINAGE IMPACTED WATERSHED

S.M. Duren, D.M. McKnight, Institute of Arctic and Alpine Research, University of Colorado at Boulder, Boulder, Colorado, USA

11:50 Lunch, Curry Student Center

Transport, Agriculture I

Yona Chen, Presiding

13:30 CHEMICAL CHARACTERISTICS OF HUMIC DISSOLVED ORGANIC MATTER FROM A SURFACE WATER AND ARSENIC-ENRICHED GROUNDWATER IN THE ARAHAIZAR REGION OF BANGLADESH: INFLUENCES OF SOURCE AND SORPTION PROCESSES

B.E. Simone, D.M. McKnight, T. Legg, N. Mladenov, J. Ebert, P.J. Hernes, D. Nemergut, Y. Zheng, University of Colorado, INSTAAR, Boulder, CO; Kansas State University, Department of Civil Engineering, 2118 Fiedler Hall, Manhattan, KS; University of California, Department of Land, Air and Water Resources, One Shields Avenue, Davis, CA; Queens College, City University of New York, School of Earth and Environmental Sciences, Flushing, NY; Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA

14:00 UNRAVELING OF TISSUE LEVEL TRACE METAL DISTRIBUTIONS IN RICE (*Oryza Sativa L.*) SEEDS USING LA-ICP-MS

P. Basnet, D. Amarasiriwardena, Z. Fu, F. Wu, School of Natural Science, Hampshire College, Amherst, Massachusetts, USA; State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Sciences, Beijing, China

14:30 ORGANIC MATTER CHANGES ALONG AN ISLAND FLOWPATH IN THE OKAVANGO DELTA, BOSTWANA, AFRICA

J. Ebert, D.M. McKnight, N. Mladenov, Department of Civil and Environmental Engineering, University of Colorado at Boulder, Boulder, CO; Department of Civil Engineering, Kansas State University, Manhattan, KS, USA

15:00 Break

Transport, Agriculture II

D. Ryan, Presiding

15.20 FERTILIZER NITROGEN DYNAMICS IN HUMIFIED FRACTIONS: A STABLE ISOTOPE STUDY

T.Vujinovic, T. Mimmo, M. Contin, P. Ceccon, M. De Nobili, Dipartimento Scienze Agrarie ed Ambientali, Università degli Studi di Udine, Udine; Faculty of Science and Technology, Free University of Bolzano, Bolzano, Italy

15:50 MEASURING THE RETAINED WATER AND SEQUESTERED ORGANIC CARBON CONTENTS OF SOIL PROFILES IN AROOSTOOK AND PISCATAQUIS COUNTIES, MAINE, USA

E.A. Ghabbour, G. Davies, A.A. Sayeed, T. Jenkins, Department of Chemistry & Chemical Biology, Northeastern University, Boston, MA; USDA-NRCS, Bangor, ME 04401, USA

Agriculture, Dispersion

R. Cook, Presiding

16:20 ORGANIC MATTER AND AGGREGATE DISTRIBUTION IN A BLACK SOIL: IMPACTS OF LAND USE CHANGE AND LONG-TERM FERTILIZATION

H. Li, B. Xing, College of Plant Sciences, Jilin University of Agricultural Science and Technology, Jilin, China; Stockbridge School of Agriculture, University of Massachusetts, Amherst, MA, USA

16:50 THE DISPERSION OF CARBON NANOTUBES BY DOM WITH DIFFERENT CHEMICAL STRUCTURES

D. Zhang, B. Pan, B. Xing, Stockbridge School of Agriculture, University of Massachusetts, Amherst, MA, USA; College of Environmental Science & Engineering, Kunming University of Science & Technology, Kunming, China

17:20 HS & T Sixteen Closes

P. Maurice, S. Cabaniss, G. Davies and E.A. Ghabbour, Presiding

17:30 *Adjourn for Banquet at 17:45 – 19:30 in 440 Egan Research Center*