Nefeli Maria Bompoti, Ph.D.

Assistant Research Professor
Department of Civil and Environmental Engineering, University of Connecticut
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RESEARCH INTERESTS

- Environmental remediation
- Fate and transport of contamination
- Surface chemistry of iron oxides
- Solid-solution interactions
- Surface complexation modeling
- Soil and waste characterization
- Geostatistical analysis for contaminated soil and groundwater

EDUCATION

University of Connecticut **Storrs, CT**
Ph.D. in Environmental Engineering 2017
Dissertation: "Modeling iron oxide reactivity in the environment"

National Technical University of Athens **Athens, Greece**
MSc in Water Resources Science and Technology 2014
Thesis: "Investigation of geochemical characteristics in soil and groundwater with chromate presence"

National Technical University of Athens **Athens, Greece**
Diploma in Civil Engineering (hydraulic engineering cycle, 5-year program) 2012

ACADEMIC APPOINTMENTS

University of Connecticut, Civil and Environmental Engineering Department **Storrs, CT**
Assistant Research Professor Aug 2018-present
Postdoctoral Associate, Connecticut Brownfields Initiative (CBI) Jan-Aug 2018
Adjunct Professor Jan-May 2018
Graduate Research and Teaching Assistant 2014-2017

OTHER WORK EXPERIENCE

XOROTEXIKI S.A. **Athens, Greece**
Water Resources Engineering, Intern May-July 2014
Conducted modeling analysis of water distribution networks. Provided consulting services to local municipalities. Assisted senior engineers in key risk management decisions.

AWARDS AND ACHIEVEMENTS

Soil Chemistry Division Student Award for Oral Presentation (3rd place) SSSA meeting, 2017
UConn Doctoral Student Travel Award Fall 2017
Goldschmidt Student Travel Grant (US NSF funded) 2017
UConn Doctoral Dissertation Fellowship Spring 2017
FEI Fellowship ($10K) 2016-2017

UConn Environmental Engineering Pre-Doctoral Fellowship Spring 2016
Gerondelis Foundation Inc. scholarship for graduate studies in U.S 2015-2016
Thomaideio Award for poster presentation (National Technical University of Athens) 2013

TEACHING EXPERIENCE

University of Connecticut **Storrs, CT**
Brownfields Redevelopment (Co-Instructor) Fall 2018
Soil Mechanics (Instructor) Fall 2018
Computer-Aided Site Design (Instructor) Spring 2018
Geoenvironmental Engineering (Teaching assistant) Spring 2017
Soil Mechanics (Teaching assistant) Fall 2015-2017

Tutor
General Chemistry 2016-2017

EDUCATIONAL PROJECTS

University of Connecticut
The Connecticut Brownfields Initiative (CBI) (Associate) Jan 2018-present
Organize service-based learning program for Brownfields Redevelopment in CT. Collaborate with engineering consultants, State Agencies, and UConn faculty to create an inter-disciplinary program. Mentor students and assist local municipalities with EPA assessments grant writing for Brownfields redevelopment through.

RESEARCH PROJECTS

University of Connecticut
National Science Foundation (Graduate assistant) 2014-2017
"Collaborative Research: Toward a unified model for ferrihydrite nanoparticles behavior in the environment: a multipronged investigation of surface structure and reactivity." PIs: Maria Chrysochoou and Nadine Kabengi.
Designed experimental protocols for batch adsorption experiments, performed flow through adsorption experiments with ATR – FTIR spectroscopy, developed experimental set -up for carbonate adsorption on mineral surfaces, and created an advanced surface complexation model for iron oxide reactivity.

UCONN FEI Center of Excellence in Microscopy fellowship (fellow) 2016-2017
"Investigating soil surfaces utilizing electron microscopy"
Characterized pure mineral phases and mineral assemblages using scanning and transmission electron microscopy techniques (SEM & TEM).

Waste and Soil Characterization
"Characterization of Cr - contaminated samples", CB&I and AECOM 2015
Characterized chromium contaminated soil samples using X-Ray Fluorescence (XRF), X-Ray Diffraction (XRD), and microscopy techniques. PI: Maria Chrysochoou

"Statistical Analysis of soil and solid waste data (TAL Metals and XRF)", CB&I 2015-2016
Performed multivariate statistical analysis on geochemical data to investigate relationships among soil elements and facilitate solid waste characterization. PI: Maria Chrysochoou

National Technical University of Athens, Greece
LIFE/CHARM: *"Chromium in Asopos Groundwater System"* (Master's student) 2013-2014
Conducted multivariate statistical analysis (factor analysis, PCA) on soil and groundwater data obtained from chromium contaminated sites.

PUBLICATIONS

1. **Bompoti, N**., Chrysochoou, M., Machesky, M. A unified surface complexation modeling approach for chromate adsorption to iron oxides, *Submitted to Environmental Science and Technology.*
2. **Bompoti, N**., Chrysochoou, M., Machesky, M. The MUSE: A multi – start optimization algorithm for surface complexation equilibrium parameters. *Submitted to ACS Earth and Space Chemistry.*
3. Kubicki J.D., Kabengi N., Chrysochoou M., and **Bompoti N.**, 2018. Density functional theory modeling of chromate adsorption onto ferrihydrite nanoparticles, *Geochem Trans (2018);19:8.*
4. **Bompoti, N**., Chrysochoou, M., Machesky, M., 2017. Surface structure of ferrihydrite: Insights from modeling surface charge. *Chem. Geol., Adsorption of metals by geomedia III: Fundamentals and implications of metal adsorption* 464, 34–45.
5. Kabengi, N.J., Chrysochoou, M., **Bompoti, N.**, Kubicki, J.D., 2017. An integrated flow microcalorimetry, infrared spectroscopy and density functional theory approach to the study of chromate complexation on hematite and ferrihdyrite. *Chem. Geol., Adsorption of metals by geomedia III: Fundamentals and implications of metal adsorption* 464, 23–33.
6. Chrysochoou M., Theologou E., **Bompoti N.**, Dermatas D., Panagiotakis I., 2016. "Occurrence, Origin and Transformation Processes of Geogenic Chromium in Soils and Sediments". *Curr. Pollut. Rep.*, pp 1–12.
7. **Bompoti N.**, Chrysochoou M., and Dermatas D., 2015. "Geochemical Characterization of Greek Ophiolitic Environments Using Statistical Analysis." *Environmental Processes 2* (1): 5–21.
8. Dermatas D., Mpouras Th., Chrysochoou M., Panagiotakis I., Vatseris Chr., Linardos N., Theologou E., **Bompoti N.**, Xenidis Anth., Papassiopi N., Sakellariou L., 2015. Origin and concentration profile of chromium in a Greek aquifer, *Journal of Hazardous Materials* (281): 35–46.

PUBLISHED PROCEEDINGS FULL PAPERS

1. **Bompoti N.**, Chrysochoou M. and Machesky M., 2016. Advances in surface complexation modeling for chromium adsorption on iron oxides, *Geo - Chicago 2016: Sustainability, Energy, and the Geoenvironment*, Chicago, IL, August 14-18, 2016.
2. Chrysochoou M., **Bompoti N.,** Dermatas D. and Theologou E., 2014. Identification of Cr and Ni origin in Greek soils via R-mode factor analysis, paper A408, *Proceedings of the 12th International Conference on Protection and Restoration of the Environment*, Skiathos, Greece, June 29 – July 3 2014.

BOOK CHAPTERS

1. Chrysochoou M. and Bompoti N. Laboratory testing for Chemical Characterization of Solids, Gas and Liquids, Manual of Geoenvironmental Engineering Professional Practice, American Society of Civil Engineers (expected publication date, January 2019).

CONFERENCE PRESENTATIONS AND POSTERS

1. Mangines H., Du Y., **Bompoti N.** and Chrysochoou M., 2018. Chromate adsorption on iron rich soils: Experiments and modeling. *New England Graduate Student Water Symposium*, University of Massachusetts, September 7-9. (oral presentation)
2. Adsit W., **Bompoti N.** and Chrysochoou M., 2018. Modeling of U (VI) of adsorption on iron oxides. *New England Graduate Student Water Symposium*, University of Massachusetts, September 7-9. (oral presentation)
3. **Bompoti N.**, Chrysochoou M. and Machesky M., 2018. Towards a unified thermodynamic database: U (VI) and Cr (VI) adsorption on iron oxides. *Goldschmidt 2018*, Boston, MA, August 12 -17. (oral presentation)
4. **Bompoti N.**, Chrysochoou M. and Machesky M., 2018. Iron oxide – solution interface: Insights from Surface Complexation Modeling. *255thAmerican Chemical Society National Meeting & Exposition*, New Orleans, March 18-22. (oral presentation)
5. Chrysochoou M., **Bompoti N.**, and Machesky M., 2018.The MUSE: A MUlti – Start optimization algorithm for surface complexation Equilibrium parameters in complex systems. *Symposium in Honor of James A Davis, 255thAmerican Chemical Society National Meeting & Exposition*, New Orleans, March 18-22. (oral presentation)
6. **Bompoti N.**, Chrysochoou M. and Machesky M., 2017. Advances on reactive transport modeling: Modeling adsorption of heavy metals on iron oxides using an innovative surface complexation model. SETAC North America 38th Annual Meeting, Minneapolis, MN, Nov 12-16. (oral presentation)
7. **Bompoti N.**, Chrysochoou M. and Machesky M., 2017. Predicting Chromate Adsorption on Iron Oxides: A surface complexation modeling study. 2017 ASA, CSSA, and SSSA Annual Meeting in Tampa, FL, Oct. 22-25. (oral presentation)
8. Chrysochoou M., **Bompoti N.**, and Machesky M., 2017. The MUSE: A MUlti –start optimization algorithm for Surface complexation Equilibrium parameters. *Goldschmidt 2017*, Paris, France, August 13 -18. (oral presentation)
9. **Bompoti N.**, Chrysochoou M. and Machesky M., 2017. The MUSE application: A Unified Surface Complexation Modeling approach for chromate binding to iron oxides. *Goldschmidt 2017*, Paris, France, August 13 -18. (oral presentation)
10. **Bompoti N.**, Chrysochoou M. and Machesky M., 2016. Surface complexation modelling of chromate adsorption on iron oxides. *Air & Waste Management Association's New England Section: Climate Change: Risks, Rewards and Resiliency" Conference 2016*, Framingham, Massachusetts, October 27. (oral presentation)
11. **Bompoti N.**, Chrysochoou M., Machesky M., 2016. Advances in surface complexation modeling for chromium adsorption on iron oxide. *Geo-Chicago 2016: Sustainability, Energy, and the Geoenvironment- Advances in Heavy Metal Treatment*, Chicago, USA, August 14-18. (poster)
12. **Bompoti N.,** Chrysochoou M., and Machesky M., 2016. Surface complexation modelling of chromate adsorption on iron oxides, *251st American Chemical Society National Meeting & Exposition*, San Diego, March 13-17. (oral presentation)
13. Chrysochoou M., **Bompoti N.,** and Machesky M., 2016. Carbonate adsorption on ferrihydrite: a semi-quantitative IR study, *251st American Chemical Society National Meeting & Exposition*, San Diego, March 13-17. (oral presentation)
14. Chrysochoou M., Kabengi N. **Bompoti N.**, Kubicki J. and Machesky M., 2016. Resolving the fine-scale reactivity of chromate complexation on iron oxide surfaces, *251st American*

Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17. (oral presentation)

15. **Bompoti N.**, Chrysochoou M. and Machesky M., 2015. Surface complexation modelling of chromate adsorption on ferrihydrite. *New England Graduate Student Water Symposium*, University of Massachusetts, September 5-9. (oral presentation)
16. Chrysochoou M., **Bompoti N.,** Theologou E. and Dermatas D., 2014. Identification of Cr and Ni origin in Greek soils via R-mode factor analysis, *12th International Conference*: *Protection & Restoration of the Environment - PRE12*, Skiathos Island, June 29-July 4. (oral presentation)
17. Bountas N., **Bompoti N.,** Feloni E., Zeikos L., Markonis Y., Tegos A., Mamassis N. and Koutsoyiannis D., 2013. Temperature variability over Greece: Links between space and time, *5th EGU Leonardo Conference, Facets of Uncertainty, STAHY'13*, Kos Island, Greece, October 17-19. (poster)
18. Houdalaki E., Basta M., **Bompoti N.**, Bountas N., Dodoula E., Iliopoulou T., Ioannidou S., Kassas K., Nerantzaki S, Papatriantafyllou E., Tettas K., Tsirantonaki D., Papalexiou S.M. and Koutsoyiannis D., 2012. On statistical biases and their common neglect. *EGU General Assembly*, Vienna, Austria, April 22-27. (poster)

PROFESSIONAL MEMBERSHIPS

American Chemical Society (ACS)
European Association of Geochemistry (EAG)
Soil Science Society of America (SSSA)

LICENSURE AND CERTIFICATIONS

FE Environmental exam passed, EIT License number pending
ACS Reviewer Lab Certificate

OTHER PROFESSIONAL ACTIVITIES

Peer-review journal reviewer for: Environmental Science: Nano, Bulletin of Environmental Contamination and Toxicology, Critical Reviews in Environmental Science and Technology

UConn representative for North East Graduate Student Water Symposium (NEGSWS), University of Massachusetts, Amherst, September 8 -10, 2017

EXPERTISE

Laboratory skills: X-Ray Fluorescence (XRF), X-Ray Diffraction (XRD), Scanning and Transmission Electron Microscopy (SEM, TEM), Atomic Absorption Spectroscopy (AAS), BET surface area analysis, Fourier Transform Infrared Spectroscopy (FTIR), Micro-XRF, -XRD and -XANES, spectrophotometry, wet chemistry skills.
Programming languages: R, Mathematica, Matlab
Computer Applications: SPSS statistics, Autocad, Bentley MicroStation & InRoads, WaterGEMS

COMMUNITY INVOLVEMENT

Participated in workshops for encouraging girls and young women to pursue opportunities in science, mathematics, engineering and technology (STEM), K-12 Outreach