NEFELI M. BOMPOTI, Ph.D.

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RESEARCH INTERESTS

- Environmental remediation
- Fate and transport of contamination
- Surface chemistry
- Solid-solution interactions
- Surface complexation modeling
- Soil and waste characterization
- Geostatistical analysis of contaminated soil and groundwater
- Brownfields redevelopment
- Resilient Communities

EDUCATION

University of Connecticut, Ph.D. Environmental Engineering, 2017
National Technical University of Athens, MSc. Water Resources Science and Technology, 2014
National Technical University of Athens, Diploma Civil Engineering, 2012

ACADEMIC APPOINTMENTS

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

OTHER WORK EXPERIENCE

XOROTEXNIKI S.A., Athens, Greece
Water Resources Engineering Intern, May-July 2014

AWARDS AND ACHIEVEMENTS

C.R. Klewin, Inc. Excellence in Teaching Award, AY 2018-2019
Soil Chemistry Division Student Award for Oral Presentation (3rd place), SSSA meeting, Fall 2017
UConn Doctoral Student Travel Award, Fall 2017
Goldschmidt Student Travel Grant (US NSF funded), Summer 2017
UConn Doctoral Dissertation Fellowship, Spring 2017
FEI Center of Excellence in Microscopy fellowship, AY 2016-2017
UConn Environmental Engineering Pre-Doctoral Fellowship, Spring 2016
Gerondelis Foundation Inc. scholarship for graduate studies in U.S, AY 2015-2016
Thomaideio Award for poster presentation (National Technical University of Athens), Fall 2013

TEACHING EXPERIENCE

University of Connecticut
Brownfields Redevelopment (Co-Instructor), Fall 2018-2020
Brownfields Redevelopment Practicum (Co-Instructor), Spring 2019/2020

Geoenvironmental Engineering (Instructor), Spring 2019
Soil Mechanics (Instructor), Fall 2018
Computer-Aided Site Design (Instructor), Spring 2018/2019
Geoenvironmental Engineering (Teaching assistant), Spring 2017
Soil Mechanics (Teaching assistant), Fall 2015-2017

Senior Design Advisor (2 CEE student teams, both awarded), AY 2018-2019

Student Advisees
Randi Mendes (Ph.D student, Environmental Engineering – Associate Advisor)
Jackie Sidman (Master's student, Environmental Engineering – Associate Advisor)
Zoe Demitrack (Undergraduate student, Environmental Engineering)
Leana Santos (Undergraduate student, Civil Engineering)
Harrison Mangines (Undergraduate student, Environmental Engineering)
William Adsit (Undergraduate student, Environmental Engineering)

EDUCATIONAL & COMMUNITY SERVICE PROJECTS

University of Connecticut
The Connecticut Brownfields Initiative (CBI) (Project Manager), Jan 2018-present

- Organizes service-based learning program for Brownfields Redevelopment in CT. Collaborate with industrial partners, State Agencies, and UConn faculty to create an interdisciplinary program.
- Mentors students, assists municipalities with brownfield redevelopment projects, and conducts program outreach including talks and webinars.
- *"Promoting brownfield redevelopment in Eastern Connecticut"*. Funded by the Community Foundation of Eastern CT. **$15K** (Through UConn Foundation).
- Supported eight EPA Brownfields Assessment Grants. Four grants awarded to CT municipalities (**total $1.1M**).

RESEARCH PROJECTS

University of Connecticut
CEE Research Initiative (PI), Jan-Aug 2020
"Embedding decision-making tools in the community: A framework for brownfields revitalization."

- Develop a decision-making tool to propose suggested reuses for brownfields in Connecticut, incorporating environmental, socioeconomic, and transit factors. **$16K**. Co-PI: Nick Lownes.

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 advanced surface complexation model for iron oxide reactivity (MUSE algorithm).

UConn FEI Center of Excellence in Microscopy fellowship (Graduate 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). **Award: $10K.**

Waste and Soil Characterization (Graduate assistant)

"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

- Performed multivariate statistical analysis on geochemical data to investigate relationships among soil elements and facilitate solid waste characterization. PI: Maria Chrysochoou.

PUBLICATIONS

1. Arnold Ch. Barret J. Campbell T., Chrysochoou M., **Bompoti N.** The Environment Corps: Combining classroom instruction, service learning and extension outreach to create a new model of community engaged scholarship at the University of Connecticut, *Journal of Higher Education Outreach and Engagement* (Submitted May 2020).
2. Yue, P., Chen, N., Peak, D., **Bompoti, N.M.,** Chrysochoou, M., Onnis-Hayden, A., Larese-Casanova, P., 2020. Oxygen atom release during selenium oxyanion adsorption on goethite and hematite. Appl. Geochem. 117, 104605.
3. **Bompoti, N**., Chrysochoou, M., Machesky, M., 2019. A unified surface complexation modeling approach for chromate adsorption to iron oxides, *Environmental Science and Technology*, 53, 6352–6361.
4. **Bompoti, N**., Chrysochoou, M., Machesky, M., 2019. Assessment of modeling uncertainties using a multi-start optimization tool for surface complexation equilibrium parameters (MUSE), *ACS Earth and Space Chemistry,* 3, 473–483.
5. 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.*
6. **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.
7. 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 ferrihydrite. *Chem. Geol., Adsorption of metals by geomedia III: Fundamentals and implications of metal adsorption* 464, 23–33.
8. 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.
9. **Bompoti N.**, Chrysochoou M., and Dermatas D., 2015. "Geochemical Characterization of Greek Ophiolitic Environments Using Statistical Analysis." *Environmental Processes 2* (1): 5–21.
10. 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 2020).

CONFERENCE PRESENTATIONS AND POSTERS (*denotes mentee)

1. *Mangines H., **Bompoti N.** and Chrysochoou M., 2019. Chromate adsorption on iron oxide rich soils: Experiments and Modeling*. 2019 AEESP Research and Education Conference*, Arizona State University, May 14–16. (poster)
2. *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)
3. *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)
4. **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)
5. **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)
6. 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, 255th American Chemical Society National Meeting & Exposition*, New Orleans, March 18-22. (oral presentation)
7. **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)
8. **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)
9. 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)
10. **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)
11. **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)
12. **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)

13. **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)
14. 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)
15. 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)
16. **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)
17. 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)
18. 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)
19. 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)

INVITED TALKS & WORKSHOPS

1. Invited speaker for Connecticut Conference of Municipalities, Sustainable CT Workshop Series. "Developing Brownfield Inventories", Vernon, February 7, 2020.
2. Workshop organization - *What you need to know about the "Forever Chemicals",* Virtual Community Engagement on PFAS in collaboration with CT DEEP, CT DPH, industrial partners and municipalities. Anticipated on October 7th, 2020.

PROFESSIONAL

- **Engineering in Training** [Environmental Engineering, CT License # EIT.0012309] (desire for PE lisence)
- **Harvard Business School Online, CORe: Credential of Readiness** [Cohort: November 2018]
- Member of American Chemical Society (ACS), European Association of Geochemistry (EAG), and Soil Science Society of America (SSSA).
- Peer-review journal reviewer for: Environmental Science: Nano, Environmental Science: Processes & Impact, Environmental Science and Technology, Bulletin of Environmental Contamination and Toxicology, Critical Reviews in Environmental Science and Technology, and Sustainable CT.

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 & OpenRoads, WaterGEMS

MEDIA & PUBLICITY

- CBI Community Impact: UConn engineering school, city partner on brownfield remediation http://www.newbritainherald.com/NBH-New+Britain+News/358084/uconn-engineering-school-city-partner-on-brownfield-remediation
- Historic Indian Peace Medal Investigation at the Museum of Connecticut History https://www.linkedin.com/feed/update/urn:li:activity:6572485697436024832/
- CBI Community Impact: UConn report on InterRoyal site gives Plainfield leaders direction https://www.norwichbulletin.com/news/20190720/uconn-report-on-interroyal-site-gives-plainfield-leaders-direction
- CBI Community Impact: Stafford gets $300K grant for brownfield work https://www.journalinquirer.com/towns/stafford/stafford-gets-k-grant-for-brownfield-work/article_45b47b68-9696-11e9-a5de-478f64f45e1f.html
- CBI Community Impact: Hamden getting help on contaminated site work from UConn students https://www.ctinsider.com/news/nhregister/article/Hamden-getting-help-on-contaminated-site-work-13841211.php
- CBI Community Impact: UConn Partners with Clinton for Brownfields Study https://www.zip06.com/news/20180925/uconn-partners-with-clinton-for-brownfields-study
- CBI Student Competition Fall 2018: https://www.brownfieldcoalitionne.org/news/7091797