Katerina Georgiou
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Education

University of California, Berkeley 08/2012 – 05/2018
Ph.D. in Chemical and Biomolecular Engineering GPA 3.98
Graduate Student Affiliate, *Lawrence Berkeley National Laboratory*
Thesis Advisor: Professor Margaret Torn

University of Minnesota, Twin Cities 08/2008 – 05/2012
B.S. in Chemical Engineering GPA 3.83
Summa Cum Laude with Distinction
Minors in Mathematics and Chemistry
Thesis Advisor: Professor Efrosini Kokkoli

Relevant Coursework & Technical Skills

Courses: *Biochemistry, Applied linear algebra, Diffusion and transport phenomena, Biomolecular engineering, Chemical reaction kinetics, Numerical methods, Cell engineering, Process control, Probability and statistics, Mathematical modeling, Polymers, Thermodynamics, Statistical mechanics, Environmental fluid mechanics, Air quality engineering, Modeling ecological and meteorological phenomena, Carbon cycle dynamics, Scalable spatial analytics, Statistical models: theory & application*

Software and Programming: *Python, R, MATLAB, Mathematica, LaTeX, Excel, Stat-Ease, Aspen HYSYS, COMSOL Multiphysics, Git, HTML, PostGIS & PostgreSQL*
Languages: *fluent in English and Greek, intermediate Spanish, beginner French and Italian*

Awards & Fellowships

USDA NIFA Postdoctoral Fellowship, Stanford University	2018 – 2020
Best Overall Student Oral Presentation, *6th International Symposium on SOM, Harpenden, UK*	09/2017
Graduate Division Travel Grant, *University of California at Berkeley*	03/2017
Department of Energy (DOE) Office of Science Graduate Student Research Fellowship	2017
Outstanding Graduate Student Instructor, University of California at Berkeley	Fall 2016
Graduate Division Travel Grant, *University of California at Berkeley*	05/2015
Outstanding Graduate Student Instructor, University of California at Berkeley	Spring 2014
Community Land Model (CLM) Tutorial, *National Center for Atmospheric Research*	02/2014
National Science Foundation (NSF) Graduate Research Fellowship	2013 – 2018
Summa Cum Laude with Distinction, *University of Minnesota*	05/2012
Cargill Chemical Engineering Award and Scholarship, *University of Minnesota*	2011 – 2012
Paula Zoromski Memorial Scholarship, *University of Minnesota*	2010 – 2012
H. Ted Davis Chemical Engineering Award and Scholarship, *University of Minnesota*	2010 – 2011
Ruth Jones Chemical Engineering Scholarship, *University of Minnesota*	2010 – 2011
Best Unit Operations Report in Chemical Engineering, *University of Minnesota*	2010 – 2011
Election to Tau Beta Pi (National Engineering Honor Society)	2010
College of Science and Engineering (CSE) Merit Scholarship, *University of Minnesota*	2008 – 2012
Dean's List, *University of Minnesota*	2007 – 2012
Post-Secondary Enrollment Opportunity (PSEO) Fellowship, *University of Minnesota*	2007 – 2008

Publications

Peer-Reviewed Publications

- **Georgiou K.,** Harte J., Mesbah A., Riley W. J. A method of alternating characteristics with application to advection-dominated environmental systems. *Comp. Geosciences*, 22(3), 851-865 (2018).
- Castanha C., Zhu B., Hicks Pries C. E., **Georgiou K.,** Torn M. S. The effects of heating, rhizosphere, and depth on root litter decomposition are mediated by soil moisture. *Biogeochemistry*, 137: 267 (2018).
- **Georgiou K.,** Abramoff R. Z., Harte J., Riley W. J., Torn M. S. Microbial community-level regulation explains carbon responses to long-term litter manipulations. *Nature Commun.* 8: 1223, 1-10 (2017).
- Rammensee S., Kang M. S., **Georgiou K.,** Kumar S., Schaffer D. V. Dynamics of Mechanosensitive Neural Stem Cell Differentiation. *Stem Cells*, 35, 497-506 (2017).
- Luo Y., Ahlström A., Allison S., Batjes N., Bonan G., Brovkin V., Carvalhais N., Chappell A., Ciais P., Davidson E., Finzi A., **Georgiou K.,** Hararuk O., Harden J., et al. Towards More Realistic Projections of Soil Carbon Dynamics by Earth System Models. *Global Biogeochemical Cycles*, 30, 40-56 (2016).
- Wieder W., Allison S., Davidson E., **Georgiou K.,** Hararuk O., He Y., Hopkins F., Luo Y., Smith M., Sulman B., Todd-Brown K., Wang Y. P., Xia J., Xu X. Explicitly Representing Soil Microbial Processes in Earth System Models. *Global Biogeochemical Cycles*, 29, 1782-1800 (2015).
- **Georgiou K.,** Koven C., Riley W. J., Torn M. S. Towards improved model structures for analyzing priming: potential pitfalls of using bulk turnover time. *Global Change Biology*, 21, 4298-2302 (2015)
- Koven C., Chambers J., **Georgiou K.,** Knox R., Negron-Juarez R., Riley W. J., Arora V., Brovkin V., Friedlingstein P., Jones C. Controls on terrestrial carbon feedbacks by productivity versus turnover in the CMIP5 Earth System Models. *Biogeosciences*, 12, 5211-5228 (2015).
- Pangburn, T.O., **Georgiou, K.,** Bates, F.S., and Kokkoli, E. Targeted Polymersome Delivery of siRNA Induces Cell Death of Breast Cancer Cells Dependent upon Orai3 Protein Expression, *Langmuir*, 28, 12816-12830 (2012).
- **Georgiou K.** and Georgiou T. T. Graceful switching in hybrid models. *IEEE Conference on Decision and Control*, 3882-3884 (2009).

In Review/Revision

- Abramoff R. Z., Torn M. S., **Georgiou K.,** Tang J., Riley W. J. Spatial gradients can hide temperature sensitivity of soil organic matter stocks. *Global Biogeochemical Cycles* (in review)
- Sulman B., Moore J., Abramoff R. Z., Averill C., **Georgiou K.**, Kivlin S., Sridhar B., Hartman M., Wang G., Wieder W., Bradford M., Luo Y., Mayes M., Morrison E., Riley W. J., Salazar A., Schimel J., Tang J. Classen A. Multiple models and experiments underscore large uncertainty in soil carbon dynamics. *Biogeochemistry* (in review)

Presentations (selected; $^{++}$ denotes mentored student)

- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability*. ESS PI Meeting, Potomac, MD, 2018 (Poster).
- **Georgiou K.,** Abramoff R. Z., Harte J., Riley W. J., Torn M. S. *Microbial community-level regulation explains carbon responses to long-term litter manipulations.* ESS PI Meeting, Potomac, MD, 2018 (Poster).
- Nico P., Porras R., **Georgiou K.,** Brodie E. L., Tas N., Abramoff R. Z., Riley W. J., Hicks Pries C., Torn M. S. *LBNL TES SFA on Belowground Biogeochemistry: Highlights on long-term stabilization.* ESS PI Meeting, Potomac, MD, 2018 (Poster).
- Soong J. L., Hicks Pries C., Castanha C., Porras R. C., Abramoff R. Z., **Georgiou K.,** Torn M. S. *Four years of warming the whole soil profile.* ESS PI Meeting, Potomac, MD, 2018 (Poster).
- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability*. EGU Meeting, Vienna, Austria, 2018 (Oral).

- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *The role of organo-mineral interactions on the capacity of soils to store carbon.* AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
- Li Z.[++], **Georgiou K.,** Torn M. S. *The effect of long-term changes in plant inputs on soil carbon stocks.* AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
- Abramoff R. Z., **Georgiou K.,** Riley W. J., Torn M. S. *Controls on SOC across space and time: Models with different acclimation schemes make similar spatial predictions but divergent warming predictions.* AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *Microbial community-level regulation explains carbon responses to long-term litter manipulations.* SOM Symposium, Harpenden, UK, 2017 (Oral). *Awarded *Best Student Oral Presentation* in Session & Overall
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *Density-dependent microbial turnover improves soil carbon model predictions of long-term litter manipulations.* EGU Meeting, Vienna, Austria, 2017 (Oral).
- Abramoff R., Harden J., **Georgiou K. (presenting author)**, Tang J., Torn M. S., Riley W. J. *Managing for soil carbon sequestration: a modeling framework for decision-making.* EGU Meeting, Vienna, Austria, 2017 (Oral).
- Riley W. J.*,* **Georgiou K.,** Abramoff R., Tang J., Torn M. S. *Modeling the vulnerability of soil C stocks to warming with a focus on minerals and microbes*. ESS PI Meeting, Potomac, MD, 2017 (Poster).
- Classen A., Sulman B., Moore J., Kivlin S., Averill C., Abramoff R. Z., Wieder W., **Georgiou K.**, Sridhar B. *Microbes, Meta-analysis, Mountains, Models, and Mechanics: Exploring Ecosystem Function under Global Change.* ESS PI Meeting, Potomac, MD, 2017 (Oral).
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *Density-dependent microbial turnover improves soil carbon model predictions of long-term litter manipulations.* Seminar in Rob Jackson's Lab, Stanford University, CA, 2016 (Invited Oral).
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *(A)biotic processes control soil carbon dynamics: quantitative assessment of model complexity, stability and response to perturbations for improving ESMs.* AGU Fall Meeting, San Francisco, CA, 2016 (Oral).
- **Georgiou K.,** Abramoff R., Koven C. D., Riley W. J., Torn M. S. *Soil carbon vulnerability to land-cover change and implications for the global carbon cycle.* AGU Fall Meeting, San Francisco, CA, 2015 (Poster).
- Koven C., Chambers J., **Georgiou K.,** Knox R., Negron-Juarez R., Riley W. J., Arora V., Brovkin V., Friedlingstein P., Jones C. *Productivity and Turnover Controls on Terrestrial Carbon Feedbacks in the CMIP5 ESMs*. ESA Annual Meeting, Baltimore, MD, 2015 (Oral).
- **Georgiou K.,** Riley W. J., Torn M. S. *Response of Soil Carbon Storage to Temperature and Carbon Input Variability in Earth System Models*. CFCC, Paris, France, 2015 (Poster).
- **Georgiou K.**, Koven C., Tang J., Riley W. J., Torn M. S. *Towards Improved Model Structures for Analyzing Soil Response to Changes in Plant Inputs*. ECOSS meeting, Northern Arizona University, Flagstaff, AZ, 2015 (Invited Oral).
- Riley W. J., Dwivedi D., **Georgiou K.,** Tang J., Torn M.S. *Explicitly Representing Microbes, Enzymes, Mineral Interactions, and Tracer Transport to Better Predict Depth-Resolved SOM Stocks and Turnover Under Warming.* ESS PI Meeting, Potomac, MD, 2015 (Poster).
- **Georgiou K.,** Riley W. J., Tang J., Torn M. S. *Emergent Responses of Soil C Dynamics to Seasonal Variability in Nonlinear SOM-microbial Models*. ESS PI Meeting, Potomac, MD, 2015 (Poster).
- **Georgiou K.,** Tang J., Riley W. J., Torn M. S. *Characterizing Feedback Control Mechanisms in Nonlinear Microbial Models of Soil Organic Matter Decomposition by Stability Analysis.* AGU Fall Meeting, San Francisco, CA, 2014 (Poster).
- **Georgiou K.,** Koven C., Riley W. J., Torn M. S. *First-order Models of Soil Organic Matter Decomposition Exhibit a Bias in Response to Elevated CO_2: Implications for Representing Soil Priming in Earth System Models.* Graduate Climate Conference, Seattle, WA, 2014 (Poster).
- **Georgiou K.** *Targeted Delivery of Polymer Vesicles to Breast Cancer Cells: Colocalization and siRNA Delivery*. Honors Thesis Presentation, University of Minnesota, Minneapolis, MN, 2012.
- **Georgiou K.** and Escalante D. *Stochastic Simulation of the Fission Yeast Cell Cycle with a Minimal CDK Control Network*, Presentation in Biomedical Engineering, Univ. of Minnesota, Minneapolis, MN, 2011.

Research Experience

Earth Sciences Division – Lawrence Berkeley National Laboratory, *Berkeley, CA* 01/2014 – present
Research Assistant: *Modeling Soil Carbon Dynamics – Torn and Riley Research Groups*
Ecosystem-climate feedbacks across spatial and temporal scales: understanding the response of soil organic matter kinetics to perturbations in temperature and organic matter inputs.

Department of Chemical Engineering – University of California, *Berkeley, CA* 10/2012 – 12/2013
Graduate Researcher: *Bioengineering and Molecular Neurobiology – Schaffer and Kumar Research Groups*
Temporal dynamics and signaling mechanisms for mechanosensitive neural stem cell differentiation to neurons with applications in regenerative medicine.

Department of Chemical Engineering – University of Minnesota, *Minneapolis, MN* 02/2010 – 05/2012
Research Assistant: *Biomaterials and Biomolecular Engineering – Kokkoli Research Group*
Drug delivery by synthetic co-polymer vesicles, called polymersomes, functionalized with peptides to promote specific binding with the targeted integrin on a cancer cell.

Department of Physics – University of Minnesota, *Minneapolis, MN* 09/2008 – 09/2009
Research Assistant: *Biological Physics and Synthetic Biology – Noireaux Research Group*
Optimizing a thermoelectric plate to use as a stage for observing gene expression. Research involved quantifying the response of gene expression to step and sinusoidal temperature inputs.

Department of Pediatrics – University of Minnesota, *Minneapolis, MN* 09/2007 – 06/2008
Research Assistant: *Cytokine Reference Laboratory – Mortari Research Group*
Determining cytokine levels and fluctuations in patient samples as a disease diagnostic, in collaboration with the Division of Hematology and Oncology of the U of M Department of Pediatrics.

Teaching Experience

Department of Chemical Engineering – University of California, *Berkeley, CA* Fall 2016
Graduate Instructor: *Transport Process (CBE 250A)*
I helped design course content and taught stand-in lectures. This was a graduate level course.
* Awarded the *Outstanding Graduate Student Instructor Award*

Department of Chemical Engineering – University of California, *Berkeley, CA* Spring 2014
Graduate Instructor: *Transport Process: Fluid Dynamics and Heat Transfer (CBE 150A)*
I taught two weekly discussion sections of 35 students each and several stand-in lectures. I also helped design course content, including computational exercises in COMSOL Multiphysics as part of a new initiative to introduce computational tools earlier in the undergraduate curriculum.
* Awarded the *Outstanding Graduate Student Instructor Award*

Department of Chemical Engineering – University of California, *Berkeley, CA* Fall 2012
Graduate Instructor: *Introduction to Chemical Engineering Design (CBE 40)*
I taught weekly discussion sections and developed teaching material for a new course that introduces freshman to topics in Chemical Engineering.

Service & Outreach

Peer Reviewer: Biogeosciences, Global Change Biology

Conference Organizer/Convener:
AGU Fall Meeting 2017 Session: B41C: Microbial-Mineral Regulation of Soil Organic Matter: Mechanisms, Experimental Approaches, and Models II. (Co-convened with: Kevin Geyer, Caitlin Hicks-Pries, Rose Abramoff, Jeffrey Bird, Karin Block, Alain Plante)

AGU Fall Meeting 2016 Session: B24D: Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes. (Co-convened with: Caitlin Hicks-Pries, Rose Abramoff, Asmeret Berhe, Jennifer Dungait)

CBE Student Symposium: 2nd Annual UC Berkeley Chemical & Biomolecular Engineering Symposium with poster and oral presentations. (Organizer)

Bay Area Scientists in Schools (BASIS) 09/2012 – present

Volunteer: Science role model program with visits to elementary and middle school classrooms, inspiring children to consider careers in STEM fields by fun science presentations and real-world experiences.

Engineers Without Borders (EWB) 09/2008 – 05/2012

Uganda Project Lead: Water treatment, sanitation, and groundwater distribution for a school in Kyetume, Uganda, in collaboration with Uganda Rural Fund, a non-government organization.

Fundraising Officer: I was responsible for the fundraising and coordination of donations and grants towards all international and local projects.

Professional Memberships

American Geophysical Union (AGU), European Geophysical Union (EGU), Ecological Society of America (ESA), Soil Ecological Society (SES), American Institute of Chemical Engineers (AIChE), Graduate Women in Engineering (GWE), Tau Beta Pi (National Engineering Honor Society), British Soil Science Society (BSSS)

Conferences & Workshops

- 2018 *Environmental System Science (ESS) PI Meeting,* Potomac, MD
- 2018 *EGU Meeting,* Vienna, Austria
- 2018 *LTER-NCEAS Meeting,* Santa Barbara, CA
- 2017 *AGU Fall Meeting,* New Orleans, LA
- 2017 *SOM Symposium,* Harpenden, United Kingdom
- 2017 *EGU Meeting,* Vienna, Austria
- 2017 *INTERFACE Soil Carbon Workshop,* Burlington, VT
- 2016 *AGU Fall Meeting,* San Francisco, CA
- 2016 *Environmental System Science (ESS) PI Meeting,* Potomac, MD
- 2015 *AGU Fall Meeting,* San Francisco, CA
- 2015 *Our Common Future Under Climate Change,* UNESCO, Paris, France
- 2015 *CalEPA Indicators of Climate Change in California Workshop,* Sacramento, CA
- 2015 *Northern Arizona University ECOSS Workshop, Flagstaff,* AZ
- 2015 *Environmental System Science (ESS) PI Meeting,* Potomac, MD
- 2014 *AGU Fall Meeting,* San Francisco, CA
- 2014 *Graduate Climate Conference,* Pack Forest, WA
- 2014 *RCN FORECAST Soil Carbon Workshop,* Breckenridge, CO
- 2013 *American Geophysical Union (AGU) Fall Meeting,* San Francisco, CA

Miscellaneous

Interviewed for **Nature Careers Feature**:

Baker, Monya. Scientific computing: Code alert, *Nature,* 541, 563-565 (2017).