

Interests: Surface water quality, microbial ecology and biogeochemistry, agent-based modeling

Education: Dr.Eng.Sc., Columbia University, 2004
M.S.E., University of Texas at Austin, 1997
B.S.C.E., Northeastern University, 1995

Employment: Technical University of Berlin (2018+)
Water Quality Engineering, Professor and Chair, 2018+
Northeastern University, Boston, MA (2004 – 2017)
Civil and Environmental Engineering Dep., Associate Professor, 2010 – 2017
HydroQual, Inc., Mahwah, NJ (1997 – 2004)

Research: Refereed journal papers: 53 (published or submitted), Other papers: 24,
Oral presentations: 74 (9 international), Posters: 35, Seminars: 37, Videos: 17

Selected recent publications (=my student):*

- Hellweger, F. L., Huang, Y., Luo, H. 2017. Carbon Limitation Drives GC Content Evolution of a Marine Bacterium in an Individual-Based Genome-Scale Model. *ISME J.*, accepted.
- Hellweger, F. L., Fredrick, N. D.*, McCarthy, M. J., Gardner, W. S., Wilhelm, S., Paerl, H. W. 2016. Dynamic, mechanistic, molecular-level modeling of cyanobacteria: *Anabaena* and nitrogen interaction. *Environmental Microbiology* 18(8): 2721-2731.
- Hellweger, F. L., van Sebille, E., Fredrick, N. D.* 2014. Biogeographic patterns in ocean microbes emerge in a neutral agent-based model. *Science*, 345(6202): 1346-1349.

Selected recent grants (my role is PI, \$ is NU share):

- Dimensions: Collaborative Research: *Anthropogenic nutrient input drives genetic, functional and taxonomic biodiversity in hypereutrophic Lake Taihu, China*, NSF/BIO/DEB, 2013-2016, \$285k
- Collaborative Research: *Causes and Mechanisms of Cell Death in Freshwater Phytoplankton*, NSF/BIO/IOS, 2011-2015, \$104k
- Collaborative Research: *Agent-Based Modeling and Observation of Intra-Population Variability in Phytoplankton*, NSF/ENG/CBET, 2007-2010, \$242k

Selected workshops & conferences

- Conference: *The individual microbe: Single-cell analysis and agent-based modelling*, @ASM Conference, American Society of Microbiology, Washington, DC. Chair: C. Plugge (Wageningen U., Netherlands), Co-chair: F. L. Hellweger.
- Workshop: *Individual-based ecology of microbes: Observations and modeling*, NIMBioS, University of Tennessee, Knoxville, TN. Organizers: F. L. Hellweger, J. U. Kreft (U. Birmingham, UK), C. Plugge (Wageningen U., Netherlands).

Teaching

Excellent student evaluations. Learning: 4.4/5.0, Instructor: 4.5/ 5.0.

Selected classes: Undergraduate: Environmental Engineering I, Senior Design Capstone, Graduate: Surface Water Quality Modeling, Agent-Based Modeling

Student advising: PhD: 5 (2 in progress), MS: 13 (5 in progress), Undergraduate: 19

Selected award: EPA Environmental Merit Award

License: Professional Engineer (PE), New York