

# Christopher A Klausmeier

Kellogg Biological Station  
Michigan State University  
Hickory Corners MI 49060  
✉ klausme1@msu.edu

*Theoretical population, community, ecosystem and  
evolutionary ecology, particularly microbial & aquatic systems*

## Education

- 1995–2000 **PhD in Ecology, Evolution and Behavior**, *University of Minnesota*, St. Paul MN,  
Thesis: *The Role of Spatial Heterogeneity in Ecological Communities*.  
Advisors: David Tilman and Claudia Neuhauser
- 1991–1995 **BS in Mathematics**, *Harvey Mudd College*, Claremont CA.  
Advisor: Steve Adolph

## Professional Experience

- 2016– **MSU Foundation Professor**, *Michigan State University*, Kellogg Biological Station,  
Departments of Plant Biology and Integrative Biology, Program in Ecology, Evolution  
& Behavior.
- 2019 **Sabbatical Visitor**, *German Centre for Integrative Biodiversity Research (iDiv)*,  
Leipzig Germany.
- 2019 **Visiting Scientist**, *INRA Eco & Sols and CNRS Centre d'Ecologie Fonctionnelle &  
Evolutive*, Montpellier France.
- 2015–2016 **Professor**, *Michigan State University*, Kellogg Biological Station and  
Department of Plant Biolog, Program in Ecology, Evolution & Behavior.
- 2011–2012 **Visiting Scientist**, *Technical University of Denmark*, DTU Aqua.
- 2009–2015 **Associate Professor**, *Michigan State University*, Kellogg Biological Station and  
Department of Plant Biology, Program in Ecology, Evolution & Behavior.
- 2005–2009 **Assistant Professor**, *Michigan State University*, Kellogg Biological Station and  
Department of Plant Biology, Program in Ecology, Evolution & Behavior.
- 2003–2005 **Assistant Professor**, *Georgia Institute of Technology*, School of Biology.
- 2001–2002 **Postdoctoral Researcher**, *Princeton University*, Department of Ecology and  
Evolutionary Biology, Advisor: Simon Levin.
- 2000–2001 **NSF Research Fellow**, *EAWAG Kastanienbaum*, Department of Aquatic Ecology,  
Advisors: Peter Bossard and Taddeusz Kawecki (University of Basel).
- 1998, 1999 **Visiting Researcher**, *University of Maryland*, Advisor: Peter Abrams.

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## Awards and Honors

- 2018 **Outstanding Ecology Theory Paper Award**, ESA Theoretical Ecology Section, Kremer & Klausmeier 2017 *Ecology Letters*
- 2011–2012 **EU Marie Curie Incoming International Fellowship (Senior)**
- 2009–2014 **NSF CAREER Award**
- 2000–2001 **NSF International Research Fellowship**

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## Grants

- 2018–2021 **Intraspecific Trait Variation in Phytoplankton at Different Scales**, *NSF Population & Community Ecology Program*, PI: Elena Litchman, co-PIs: CK, Edward Theriot (Texas), \$992,149 total, \$543,000 MSU.
- 2018–2021 **Modeling the Evolutionary Emergence of Diverse Microbial Metabolisms**, *NASA Exobiology Program*, PI: Elena Litchman, co-PIs: CK, Ghjuvan Grimaud (U Corsica), \$360,000.
- 2016–2020 **Genetic, Functional and Phylogenetic Diversity Determines Marine Phytoplankton Community Responses to Changing Temperature and Nutrients**, *NSF Dimensions of Biodiversity*, PI: Elena Litchman, co-PIs: CK, David Hutchins (USC), Tatiana Rynearson (URI), \$2,000,000 total, \$640,989 MSU.
- 2015–2018 **Microscopic Foundations For Macroecological Patterns**, *Simons Foundation*, PI: CK, co-PI: Elena Litchman, \$599,583.
- 2017 **Ecology Meets Systems Biology: Developing a Pan-Microbial Trait-Based Framework for Community Ecology and Ecosystem Functioning**, *NIMBioS Investigative Workshop*, PI: Elena Litchman, co-PIs: CK, Christine Hawkes (UT Austin).
- 2015–2017 **Trait-Based Models for Complex Microbial Communities**, *DARPA Biological Robustness in Complex Settings (BRICS) Program*, PI: CK, co-PI: Elena Litchman, \$801,210.
- 2011–2017 **Lake Baikal Responses to Global Change: The Role of Genetic, Functional and Taxonomic Diversity in the Plankton**, *NSF Dimensions of Biodiversity*, PI: Elena Litchman, co-PIs: CK, Stephanie Hampton (UCSB), Lev Yampolsky (ETSU), Marianne Moore (Wellesley), Edward Theriot (Texas), \$2,000,000 total, \$599,941 MSU.
- 2011–2017 **Experimental and Theoretical Trait-Based Approaches to Optimizing Algal Biofuel Polycultures**, *NSF Division of Chemical, Bioengineering, Environmental, and Transport Systems*, PI: Elena Litchman, co-PI: CK, \$328,537.
- 2009–2015 **Phytoplankton Traits, Functional Groups and Community Organization: A Synthesis**, *NSF Biological Oceanography Program*, PI: Elena Litchman, co-PI: CK, \$544,871.

- 2009–2014 **CAREER: Modeling Complexity in Plankton Communities**, *NSF Ecology Program*, \$835,660.
- 2011–2013 **Trait-Based Ecosystem Models for Deep-Sea Chemosynthetic Microbial Communities**, *Gordon and Betty Moore Foundation*, \$51,000 direct costs.
- 2010–2012 **Food Web Dynamics and Stoichiometric Constraints in Meta-ecosystems**, *NIMBioS Working Group*, PI: Mathew Leibold (Texas), co-PIs: CK, Robert Sterner (Minnesota), and Francois Massol (CEMAGREF).
- 2008–2012 **Soil Moisture as a Master Variable of Microbial Diversity and Metabolic Activity in an Agricultural Landscape**, *USDA*, PI: Jay Lennon, co-PIs: CK and Zach Aanderud, \$319,780.
- 2005–2011 **Plankton Community Assembly: Theory and Practice**, *James S. McDonnell Foundation*, PI: CK, co-PI: Elena Litchman, \$449,968 direct costs.
- 2005–2009 **QEIB: Novel Approaches to Plankton Seasonal Succession**, *NSF Ecology Program*, PI: CK, co-PIs: Elena Litchman and Leonid Bunimovich, \$350,000 plus REU Supplement (\$8,850).
- 2005–2009 **Vertical Distribution of Phytoplankton**, *NSF Ecology Program*, PI: Elena Litchman, co-PI: CK, \$350,000 plus REU Supplement (\$8,850).
- 2005–2006 **Towards a Theory of Local/Regional Community Ecology**, *Michigan State University IRGP*, \$49,908 direct costs.

## Publications

- In press Guittar J, Koffel T, Shade A, **Klausmeier CA**, Litchman E. Host-microbiome feedbacks underlie regime shifts in the gut. *American Naturalist*
- Koffel T, Daufresne T, **Klausmeier CA**. From competition to facilitation and mutualism: a general theory of the niche. *Ecological Monographs*
- 2021 Wollrab S, Izmet'yeva L, Hampton SE, Silow EA, Litchman E, **Klausmeier CA**. Climate change-driven regime shifts in a planktonic food web. *American Naturalist* 197: 281–295
- 2020 **Klausmeier CA**, Osmond MM, Kremer CT, Litchman E. Ecological limits to evolutionary rescue. *Philosophical Transactions of the Royal Society B* 375: 20190453
- Klausmeier CA**, Kremer CT, Koffel T. Trait-based ecological and eco-evolutionary theory. pp. 161–194 in eds. McCann KS, Gellner G, *Theoretical Ecology: Concepts and Applications*, Oxford University Press
- 2019 Aranguren-Gassis M, Kremer CT, **Klausmeier CA**, Litchman E. Nitrogen limitation inhibits marine diatom adaptation to high temperatures. *Ecology Letters* 22: 1860–1869

- Leibold MA, Urban MC, De Meester L, **Klausmeier CA**, Vanoverbeke J. Regional neutrality evolves through local adaptive niche evolution. *Proceedings of the National Academy of Science* 116: 2612–2617
- Sun Z, Koffel T, Stump SM, Grimaud G, **Klausmeier CA**. Microbial cross-feeding promotes multiple stable states and species coexistence, but also susceptibility to cheaters. *Journal of Theoretical Biology* 465: 63–77
- 2018 Edwards KF, Kremer CT, Miller ET, Osmond MM, Litchman E, **Klausmeier CA**. Evolutionarily stable communities: a framework for understanding the role of trait evolution in the maintenance of diversity. *Ecology Letters* 21: 1853–1868
- O'Donnell DR, Hamman CR, Johnson EC, Kremer CT, **Klausmeier CA**, Litchman E. Rapid thermal adaptation in a marine diatom reveals constraints and trade-offs. *Global Change Biology* 24: 4554–4565
- Koffel T, Massol F, Daufresne T, **Klausmeier CA**. Plant strategies along resource gradients. *American Naturalist* 192: 360–378
- Stump SM, Johnson EC, **Klausmeier CA**. How leaking and overproducing resources affect the evolutionary robustness of cooperative cross-feeding. *Journal of Theoretical Biology* 454: 278–291
- Stump SM, Johnson EC, Sun Z, **Klausmeier CA**. How spatial structure and neighbor uncertainty promote mutualists and weaken black queen effects. *Journal of Theoretical Biology* 446: 33–60
- Stump SM, Johnson EC, **Klausmeier CA**. Local interactions and self-organized spatial patterns stabilize microbial cross-feeding against cheaters. *Journal of the Royal Society Interface* 15: 20170822
- 2017 Osmond MM, **Klausmeier CA**. An evolutionary tipping point in a changing environment. *Evolution* 71: 2930–2941
- Kremer CT, **Klausmeier CA**. Species packing in eco-evolutionary models of seasonally fluctuating environments. *Ecology Letters* 20: 1158–1168
- Thomas MK, Aranguren-Gassis M, Kremer CT, Gould MR, Anderson K, **Klausmeier CA**, Litchman E. Temperature-nutrient interactions exacerbate sensitivity to warming in phytoplankton. *Global Change Biology* 23: 3269–3280
- Osmond MM, Otto SP, **Klausmeier CA**. When predators help prey adapt and persist in a changing environment. *American Naturalist* 190: 83–98
- Wickman J, Diehl S, Ryabov AB, Blasius B, **Klausmeier CA**, Brännström Å. Determining selection across heterogeneous landscapes: a perturbation-based method and its application to modeling evolution in space. *American Naturalist* 189: 381–395
- Miller ET, **Klausmeier CA**. Evolutionary stability of coexistence due to the storage effect in a two-season model. *Theoretical Ecology* 10: 91–103

- 2016 Bonachela JA, **Klausmeier CA**, Edwards KF, Litchman E, Levin SA. The role of phytoplankton diversity in the emergent oceanic stoichiometry. *Journal of Plankton Research* 38: 1021–1035
- Koffel T, Daufresne T, Massol F, **Klausmeier CA**. Geometrical envelopes: extending graphical contemporary niche theory to communities and eco-evolutionary dynamics. *Journal of Theoretical Biology* 407: 271–289
- Stump SM, **Klausmeier CA**. Competition and coexistence between a syntrophic consortium and a metabolic generalist, and its effect on productivity. *Journal of Theoretical Biology* 404: 348–360
- Edwards KF, Thomas MK, **Klausmeier CA**, Litchman E. Phytoplankton growth and the interaction of light and temperature: a synthesis at the species and community level. *Limnology & Oceanography* 61: 1232–1244
- Lewandowska AM, and 31 others. The influence of balanced and imbalanced resource supply on biodiversity-functioning relationship across ecosystems. *Philosophical Transactions of the Royal Society B* 371: 20150283
- 2015 Litchman E, de Tezanos Pinto P, Edwards KF, **Klausmeier CA**, Kremer CT, Thomas MK. Global biogeochemical impacts of phytoplankton: a trait-based perspective. *Journal of Ecology* 103: 1384–1396
- Edwards KF, **Klausmeier CA**, Litchman E. Nutrient utilization traits in phytoplankton (data paper). *Ecology* 96:2311
- Reed DC, Breier JA, Jiang H, Anantharaman K, **Klausmeier CA**, Toner BM, Hancock C, Speer K, Thurnherr AM, Dick GJ. Predicting the response of the deep-ocean microbiome to geochemical perturbations by hydrothermal vents. *ISME Journal* 9: 1857–1869
- Edwards KF, Thomas MK, **Klausmeier CA**, Litchman E. Light and growth in marine phytoplankton: Allometric, taxonomic, and environmental variation. *Limnology and Oceanography* 60: 540–552
- Litchman E, Edwards KF, **Klausmeier CA**. Microbial resource utilization traits and trade-offs: implications for community structure, functioning and biogeochemical impacts at present and in the future. *Frontiers in Microbiology* 6:254
- 2013 Kremer CT, **Klausmeier CA**. Coexistence in a variable environment: eco-evolutionary perspectives. *Journal of Theoretical Biology* 339: 14–25
- Edwards KF, **Klausmeier CA**, Litchman E. A three-way tradeoff maintains functional diversity under variable resource supply. *American Naturalist* 182: 786–800
- Edwards KF, Litchman E, **Klausmeier CA**. Functional traits explain phytoplankton responses to environmental gradients across lakes of the United States. *Ecology* 94: 1626–1635

- Edwards KF, Litchman E, **Klausmeier CA**. Functional traits explain phytoplankton community structure and seasonal dynamics in a marine ecosystem. *Ecology Letters* 16: 56–63
- 2012 Thomas MK, Kremer CT, **Klausmeier CA**, Litchman E. A global pattern of thermal adaptation in marine phytoplankton. *Science* 338: 1085–1088
- Litchman E, Edwards KF, **Klausmeier CA**, Thomas MK. Phytoplankton niches, traits and eco-evolutionary responses to global environmental change. *Marine Ecology Progress Series* 470: 235–248
- Norberg J, Urban MC, Vellend M, **Klausmeier CA**, Loeuille N. Eco-evolutionary responses of biodiversity to climate change. *Nature Climate Change* 2: 747–751
- Klausmeier CA**, Litchman E. Successional dynamics in the seasonally forced diamond food web. *American Naturalist* 180: 1–16
- Mellard JP, Yoshiyama K, **Klausmeier CA**, Litchman E. Experimental test of phytoplankton competition for nutrients and light in poorly mixed water columns. *Ecological Monographs* 82: 239–256
- Steiner CF, **Klausmeier CA**, Litchman E. Transient dynamics and the destabilizing effects of prey heterogeneity. *Ecology* 93: 632–644
- Grman E, Robinson TMP, **Klausmeier CA**. Ecological specialization and trade affect the outcome of negotiations in mutualism. *American Naturalist* 179: 567–581
- Duffy MA, Ochs JH, Penczykowski RM, Civitello DJ, **Klausmeier CA**, Hall SR. Ecological context influences epidemic size and parasite-driven evolution. *Science* 335: 1636–1638
- Edwards KF, Thomas MK, **Klausmeier CA**, Litchman E. Allometric scaling and taxonomic variation in nutrient utilization traits and maximum growth rate of phytoplankton. *Limnology and Oceanography* 57: 554–566
- 2011 Edwards KF, **Klausmeier CA**, Litchman E. A fundamental three-way tradeoff between nitrogen and phosphorus competitive abilities and cell size in phytoplankton. *Ecology* 92: 2085–2095
- Stomp M, Litchman E, Mittelbach GG, Huisman J, **Klausmeier CA**. Large-scale biodiversity patterns in freshwater phytoplankton. *Ecology* 92: 2096–2107
- Schwaderer A, Yoshiyama K, de Tezanos Pinto P, Swenson N, **Klausmeier CA**, Litchman E. Eco-evolutionary differences in light utilization traits and distributions of freshwater phytoplankton. *Limnology and Oceanography* 56: 589–598
- Mellard JP, Yoshiyama K, Litchman E, **Klausmeier CA**. The vertical distribution of phytoplankton in stratified water columns. *Journal of Theoretical Biology* 269: 16–30
- 2010 Golubski A, **Klausmeier CA**. Control in mutualisms: combined implications of partner choice and bargaining roles. *Journal of Theoretical Biology* 267: 535–545

- Litchman E, de Tezanos Pinto P, **Klausmeier CA**, Thomas MK, Yoshiyama K. Linking traits to species diversity and community structure in phytoplankton. *Hydrobiologia* 653: 15-38
- Klausmeier CA**. Successional state dynamics: a novel approach to modeling nonequilibrium foodweb dynamics. *Journal of Theoretical Biology* 262: 584–595
- 2009 Steiner CF, Schwaderer AS, Huber V, **Klausmeier CA**, Litchman E. Periodically forced food chain dynamics: model predictions and experimental validation. *Ecology* 90: 3099–3107
- Hsu SB, **Klausmeier CA**, Lin CJ. Analysis of a model of two parallel food chains. *Discrete and Continuous Dynamical Systems Series B* 12: 337–359
- Yoshiyama K, Mellard JP, Litchman E, **Klausmeier CA**. Phytoplankton competition for nutrients and light in a stratified water column. *American Naturalist* 174: 190–203
- Litchman E, **Klausmeier CA**, Yoshiyama K. Contrasting size evolution in marine and freshwater diatoms. *Proceedings of the National Academy of Science* 106: 2665–2670
- 2008 Litchman E, **Klausmeier CA**. Trait-based community ecology of phytoplankton. *Annual Review of Ecology, Evolution, and Systematics* 39: 615–639
- Klausmeier CA**. Floquet theory: a useful tool for understanding nonequilibrium dynamics. *Theoretical Ecology* 1: 153–161
- Urban MC, and 13 others. The evolutionary ecology of metacommunities. *Trends in Ecology and Evolution* 23: 311–317
- Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *Ecological Research* 23: 479–485
- Jäger CG, Diehl S, Matuschek C, **Klausmeier CA**, Stibor H. Transient dynamics of pelagic producer-grazer systems in a gradient of nutrients and mixing depths. *Ecology* 89: 1272–1286
- Yoshiyama K, **Klausmeier CA**. Optimal cell size for resource uptake in fluids: a new facet of resource competition. *American Naturalist* 171: 59–70
- 2007 Litchman E, **Klausmeier CA**, Schofield O, Falkowski PG. The role of functional traits and trade-offs in structuring phytoplankton communities: scaling from cellular to ecosystem level. *Ecology Letters* 10: 1170–1181
- Lenton TM, **Klausmeier CA**. Biotic stoichiometric controls on the deep ocean N:P ratio. *Biogeosciences* 4: 353–367
- Klausmeier CA**, Litchman E, Levin SA. A model of flexible uptake of two essential resources. *Journal of Theoretical Biology* 246: 278–289
- 2006 Litchman E, **Klausmeier CA**, Miller JR, Schofield OM, Falkowski PG. Multi-nutrient, multi-group model of present and future oceanic phytoplankton communities. *Biogeosciences* 3: 585–606

- Stieglitz M, McKane RB, **Klausmeier CA**. A simple model for analyzing climatic effects on terrestrial carbon and nitrogen dynamics: an arctic case study. *Global Biogeochemical Cycles* 20: GB3016
- De Leenheer P, Levin SA, Sontag ED, **Klausmeier CA**. Global stability in a chemostat with multiple nutrients. *Journal of Mathematical Biology* 52: 419–438
- 2005 Schade JD, Espeleta JF, **Klausmeier CA**, McGroddy ME, Thomas SA, Zhang L. A conceptual framework for ecosystem stoichiometry: balancing resource supply and demand. *Oikos* 109: 40–51
- 2004 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Optimal nitrogen-to-phosphorus stoichiometry of phytoplankton. *Nature* 429: 171–174
- Klausmeier CA**, Litchman E, Levin SA. Phytoplankton growth and stoichiometry under multiple nutrient limitation. *Limnology and Oceanography* 49: 1463–1470
- Litchman E, **Klausmeier CA**, Bossard P. Phytoplankton nutrient competition under dynamic light regimes. *Limnology and Oceanography* 49: 1457–1462
- 2002 **Klausmeier CA**, Tilman D. Spatial models of competition. pp. 43–78 in eds. Sommer U, Worm B, *Competition and Coexistence*, Springer-Verlag
- van de Koppel J, and 11 others. Spatial interaction and vegetation collapse. *American Naturalist* 159: 209–218
- 2001 **Klausmeier CA**, Litchman E. Algal games: the vertical distribution of phytoplankton in poorly-mixed water columns. *Limnology and Oceanography* 46: 1998–2007
- Litchman E, **Klausmeier CA**. Competition of phytoplankton under fluctuating light. *American Naturalist* 157: 170–187
- Klausmeier CA**. Habitat destruction and extinction in competitive and mutualistic metacommunities. *Ecology Letters* 4: 57–63
- 1999 **Klausmeier CA**. Regular and irregular patterns in semiarid vegetation. *Science* 284: 1826–1828
- 1998 **Klausmeier CA**. Extinction in multispecies and spatially explicit models of habitat destruction. *American Naturalist* 152: 303–310

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## Seminars

- 2020 **University of Alberta**, *Mathematical Biology Seminar*.
- 2019 **German Centre for Integrative Biodiversity Research (iDiv)**.  
**CNRS Montpellier**, *Centre d'Ecologie Fonctionnelle & Evolutive*.  
**Ben-Gurion University of the Negev**, *Jacob Blaustein Institutes for Desert Research*.
- 2018 **University of Michigan**, *Department of Ecology and Evolutionary Biology*.



- Ohio State University**, *Department of Mathematics, PDE Seminar Series.*
- University of Arizona**, *Department of Ecology and Evolutionary Biology.*
- UCLA**, *Department of Mathematics.*
- University of Calgary**, *Department of Biological Sciences.*
- 2017 **Columbia University**, *Department of Ecology, Evolution and Environmental Biology.*
- 2015 **Harvey Mudd College**, *Department of Biology.*
- EAWAG**, *Department of Aquatic Ecology.*
- 2013 **German Centre for Integrative Biodiversity Research (iDiv).**
- University of Zurich**, *Institute of Evolutionary Biology and Environmental Studies.*
- 2012 **University of Minnesota**, *Department of Ecology and Evolutionary Biology.*
- Umeå University**, *IceLab.*
- University of Hamburg**, *Institute for Hydrobiology and Fisheries Science.*
- Carl von Ossietzky University of Oldenburg**, *Institute for Chemistry and Biology of the Marine Environment.*
- Helmholtz Centre for Environmental Research**, *Department of Aquatic Ecosystem Analysis.*
- Technical University of Denmark**, *Department of Mathematics.*
- 2011 **Technical University of Denmark**, *DTU Aqua.*
- Oakland University**, *Department of Physics.*
- 2009 **Umeå University**, *Department of Ecology and Environmental Science, LEREC Lecturer.*
- University of Wisconsin-Milwaukee**, *Department of Biological Sciences.*
- 2008 **University of Amsterdam**, *Institute for Biodiversity and Ecosystem Studies.*
- Michigan State University**, *Ecology, Evolutionary Biology and Behavior Program.*
- Kalamazoo College**, *Center for Complex Systems Study.*
- 2007 **Kalamazoo College**, *Department of Mathematics and Computer Science.*
- Japan Agency for Marine-Earth Science and Technology**, *Yokohama Institute for Earth Sciences.*
- Kyoto University**, *Center for Ecological Research.*
- 2006 **University of Groningen**, *Centre for Ecological and Evolutionary Studies, Graduate Student Invited Speaker.*
- Kenyon College**, *Department of Mathematics.*

- 2005 **University of North Carolina**, *Department of Biology*.  
**University of Michigan**, *Department of Ecology and Evolutionary Biology*.  
**University of Kansas**, *Department of Ecology and Evolutionary Biology*.  
**Michigan State University**, *Kellogg Biological Station and Department of Zoology*.
- 2004 **Indiana University**, *Department of Biology*.  
**University of Guelph**, *Department of Zoology*.  
**University of Oxford**, *Department of Zoology*.  
**University of Toronto**, *Department of Zoology*.  
**Georgia Institute of Technology**, *School of Mathematics*.  
**McGill University**, *Department of Biology*.
- 2003 **Georgia Institute of Technology**, *BiComB*.
- 2001 **Georgia Institute of Technology**, *School of Biology*.  
**University of California Los Angeles**, *Department of Organismic Biology, Ecology, and Evolution*.  
**University of Texas**, *Department of Integrative Biology*.  
**EAWAG**, *Limnological Research Center*.
- 2000 **University of Amsterdam**, *Aquatic Microbial Ecology*.  
**University of Basel**, *Zoological Institute (×2)*.
- 1999 **University of Minnesota**, *Department of Mathematics*.
- 1998 **Rice University**, *Department of Ecology and Evolutionary Biology*.

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## Presentations

### Invited talks

- 2019 **Klausmeier CA**. Trait-based approaches in temporally and spatially varying environments. *DynaTrait Annual Meeting*, Potsdam Germany.  
**Klausmeier CA**. Trait-based eco-evolutionary modeling. *Second Symposium on Functional Marine Biodiversity*, Helmholtz Institute for Functional Marine Biodiversity, Oldenburg, Germany.
- 2017 **Klausmeier CA**, Kremer CT, Miller ET. Trait-based perspectives on species coexistence in variable environments. *ESA Annual Meeting*, Portland, Oregon.  
**Klausmeier CA**. Trait-based approaches to ecology and evolution. *First Symposium on Functional Marine Biodiversity*, Helmholtz Institute for Functional Marine Biodiversity, Oldenburg, Germany.

- Litchman E, **Klausmeier CA**. Trait-based approaches to community ecology and evolution. *Simons Foundation Conference on Theory and Biology*, New York NY.
- 2016 **Klausmeier CA**, Litchman E. Trait-based approaches to plankton ecology. *Global Co-evolution of the Ocean Environment and its Ecology Workshop*, Bristol, UK.
- 2014 **Klausmeier CA**. Trait-based approaches to plankton ecology. *JST CREST Workshop: Advances in the Plankton Ecosystem Model and the Evaluation of Biodiversity*, Tokyo, Japan.
- Klausmeier CA**. ADventures in space and time. *Modelling and Analysis of Innovation and Competition Processes*, Milan Italy.
- 2013 **Klausmeier CA**. Trait-based approaches to species abundance distributions. *International Workshop on Trait-based Approaches to Ocean Life*, Copenhagen, Denmark.
- Klausmeier CA**. Plankton as a model system for community ecology. *Ecological Society of America Annual Meeting, Special Session "Ecological theory in Microbial ecology"*, Minneapolis MN.
- 2012 **Klausmeier CA**, Litchman E. Vertical distribution of phytoplankton. *Everything Disperses to Miami*, Miami FL.
- 2011 **Klausmeier CA**, Litchman E. Theoretical approaches to plankton ecology. *Helsinki Bio-Math Day*, Helsinki, Finland.
- Klausmeier CA**, Litchman E. Trait-based approaches to plankton ecology. *Danish Marine Ecological Modelling Center Annual Meeting*, Charlottenlund, Denmark.
- Klausmeier CA**, Litchman E. Theoretical approaches to phytoplankton ecology. *Mathematical Models in Ecology and Evolution*, Groningen, Netherlands.
- 2010 **Klausmeier CA**, Litchman E. The vertical distribution of phytoplankton. *NCTS Workshop on PDE Models of Biological Processes*, National Tsing-Hua University, Hsinchu, Taiwan.
- Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *IMBER IMBIZO II*, Crete, Greece.
- 2009 **Klausmeier CA**, Litchman E. The vertical distribution of phytoplankton. *Workshop on Adaptive Movement of Interacting Species*, Fields Institute, Toronto, Canada.
- Litchman E, **Klausmeier CA**. Trait-based community ecology of phytoplankton. *ASLO Meeting*, Nice, France.
- Klausmeier CA**, Litchman E. Trait-based community ecology: theoretical approaches. *ASLO Meeting*, Nice, France.
- 2008 **Klausmeier CA**, Litchman E. Modeling plankton seasonal succession. *Ecological Society of America Annual Meeting*, Milwaukee WI.

- Lennon JT, Aanderud ZT, **Klausmeier CA**. Maintenance of microbial diversity in soils: Assessing the importance of habitat heterogeneity and physiological stress with theory and experiments. *Ecological Society of America Annual Meeting*, Milwaukee WI.
- 2007 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *Ecological Society of Japan Annual Meeting*, Matsuyama, Japan.
- 2006 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *Gordon Conference on Metabolic Basis of Ecology*, Lewiston, ME.
- Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *Mathematical Biosciences Institute, Global Ecology Workshop*, Columbus, OH.
- Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *Gordon Conference on Biomathematics and Theoretical Biology*, Tilton, NH.
- Klausmeier CA**, Litchman E. Theoretical approaches to plankton ecology. *Modeling Approaches in Biodiversity Workshop*, Sede Boqer, Israel.
- 2005 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton stoichiometry. *ASLO Meeting*, Santiago de Compostela, Spain.
- 2002 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Functional stoichiometry. *Biodiversity of Planktonic Communities: Scaling Up and Down*, Ann Arbor, MI.
- Litchman E, **Klausmeier CA**, Bossard P. 2002. Phytoplankton nutrient competition and stoichiometry under dynamic light regimes. *Biodiversity of Planktonic Communities: Scaling Up and Down*, Ann Arbor, MI.
- Klausmeier CA**. Theoretical approaches to plankton community ecology. *Biodiversity and Ecosystem Functioning, NERC-NSF-JSPS Joint Trilateral Program Workshop*, Sapporo, Japan.
- [Contributed presentations](#)
- 2019 **Klausmeier CA**, Stump S, Sun Z, Koffel T, Johnson E. Microbial cross-feeding: well-mixed and spatial dynamics. *Mathematical Models in Ecology & Evolution*, Lyon, France.
- Koffel T, **Klausmeier CA**, Daufresne T. A niche theory of positive interactions. *Mathematical Models in Ecology & Evolution*, Lyon, France.
- Lerch B, Rudrapatna A, Koffel T, **Klausmeier CA**. A master equation approach to studying competitive metacommunities. *Mathematical Models in Ecology & Evolution*, Lyon, France.
- 2018 Koffel T, **Klausmeier CA**, Daufresne T. A contemporary niche theory of positive interactions. *ESA Annual Meeting*, New Orleans, Louisiana.
- Ranjan R, Koffel T, **Klausmeier CA**. Keystone predation meets resource ratio theory: Community assembly and coexistence in a freshwater food web module. *ESA Annual Meeting*, New Orleans, Louisiana.

- Klausmeier CA**, Miller E, Kremer CA. Trait-based perspectives on species coexistence in variable environments. *ASLO Summer Meeting*, Victoria, British Columbia.
- Klausmeier CA**, Miller E, Kremer CA. Trait-based perspectives on species coexistence in variable environments. *American Society of Naturalists Meeting*, Asilomar, California.
- Klausmeier CA**. Trait-based eco-evolutionary modeling with Mathematica. *American Society of Naturalists Meeting*, Asilomar, California.
- 2017 Wollrab S, Litchman E, Hampton SE, Silow EA, Lyubov I, **Klausmeier CA**. The interplay of biotic and abiotic factors in determining spring bloom dynamics in Lake Baikal with climate warming. *ESA Annual Meeting*, Portland, Oregon.
- Sun Z, Stump SM, Koffel T, Grimaud G, **Klausmeier CA**. Cross-feeding gives rise to multiple stable states and promotes species coexistence in a microbial community. *ESA Annual Meeting*, Portland, Oregon.
- Grimaud G, Litchman E, Kwong W, Moran N, **Klausmeier CA**. The model of bacterial cross-feeding interactions in the bee gut. *ESA Annual Meeting*, Portland, Oregon.
- Stump SM, Johnson E, Sun Z, **Klausmeier CA**. Space promotes mutualistic cross-feeding and reduces Black Queen effects, even in well mixed environments. *ESA Annual Meeting*, Portland, Oregon.
- Johnson E, Stump SM, **Klausmeier CA**. Distance makes the heart grow stronger: how space makes mutualisms robust to cheaters. *ESA Annual Meeting*, Portland, Oregon.
- Umemura K, Litchman E, **Klausmeier CA**. Dynamical modeling of species abundance distributions using metacommunity and trait-based approaches. *ESA Annual Meeting*, Portland, Oregon.
- Ranjan R, **Klausmeier CA**. How do resource use and the resource spectrum determine the structure of competitive communities? *ESA Annual Meeting*, Portland, Oregon.
- 2016 Koffel T, Daufresne T, Massol F, **Klausmeier CA**. Adaptation and diversification of plant strategies in response to the combined selective pressures of nutrient limitation and herbivore grazing. *Ecological Society of America Annual Meeting*, Fort Lauderdale, FL.
- Stump SM, **Klausmeier CA**. Competition and coexistence between a syntrophic consortium and a metabolic generalist, and its effect on productivity. *Ecological Society of America Annual Meeting*, Fort Lauderdale, FL.
- Osmond MM, **Klausmeier CA**. When predators help prey adapt and persist. *Evolution Meeting*, Austin TX.
- 2015 **Klausmeier CA**. ADventures in space and time. *Mathematical Models in Ecology and Evolution*, Paris France.

- 2014 Litchman E, De Tezanos Pinto P, Edwards KF, **Klausmeier CA**, Kremer CT, Thomas MK. Biogeochemical impacts of phytoplankton community structure and their alteration by global change stressors. *Ecological Society of America Annual Meeting*, Sacramento CA.
- Edwards KF, Thomas MK, **Klausmeier CA**, Litchman E. How light and temperature interact to determine growth in phytoplankton: a synthesis. *Ecological Society of America Annual Meeting*, Sacramento CA.
- Miller E, **Klausmeier CA**. Temporal variation and coexistence: Ecological but not evolutionary coexistence of generalists and specialists in a two-season world. *Ecological Society of America Annual Meeting*, Sacramento CA.
- Klausmeier CA**, Nathan J, Yoshiyama K. Phytoplankton species coexistence along vertical gradients of nutrients and light. *ASLO Ocean Sciences Meeting*, Honolulu HI.
- Edwards KF, Thomas MK, **Klausmeier CA**, Litchman E. Light and phytoplankton growth: allometry, taxonomic variation, and biogeography. *ASLO Ocean Sciences Meeting*, Honolulu HI.
- Reed DC, Breier JA, Jiang H, **Klausmeier CA**, Dick GJ. Coupled microbial-geochemical dynamics in a model deep-sea hydrothermal plume. *ASLO Ocean Sciences Meeting*, Honolulu HI.
- Litchman E, De Tezanos Pinto P, **Klausmeier CA**. Diversity of competitive outcomes between a nitrogen-fixer and a non-fixer and the extension of the nitrogen-fixers' competitive niche. *ASLO Ocean Sciences Meeting*, Honolulu HI.
- 2013 **Klausmeier CA**. Trait-based approaches to species abundance distributions. *Ecological Society of America Annual Meeting*, Minneapolis MN.
- Edwards KF, **Klausmeier CA**, Litchman E. A three-way tradeoff maintains functional diversity under variable resource supply. *Ecological Society of America Annual Meeting*, Minneapolis MN.
- Kremer CT, **Klausmeier CA**. Traveling between extremes: the shape of temporal variation alters competition and evolution in fluctuating environments. *Ecological Society of America Annual Meeting*, Minneapolis MN.
- Miller E, **Klausmeier CA**, Litchman E, Edwards KF. Trait-based investigation of phytoplankton communities reveals predictable responses to seasonal environmental variation. *Ecological Society of America Annual Meeting*, Minneapolis MN.
- 2012 Reed D, Jiang H, Breier J, **Klausmeier C**, Toner B, Dick G. A trait-based model of microbial-geochemical dynamics in deep-sea hydrothermal plumes. *ISME14*, Copenhagen, Denmark.

- Miller E, **Klausmeier C**. Seasonal succession in phytoplankton cell size contrasted with an adaptive dynamic food-web model in a periodic system: how zooplankton regulate seasonal turnover in phytoplankton traits. *Ecological Society of America Annual Meeting*, Portland OR.
- Edwards KF, Litchman E, **Klausmeier C**. Functional traits predict phytoplankton community structure and successional pattern in a marine ecosystem. *Ecological Society of America Annual Meeting*, Portland OR.
- 2011 Duffy MA, Housley JM, Penczykowski RM, **Klausmeier CA**, Hall SR. Ecological context influences parasite-driven evolution and host-parasite dynamics. *Ecological Society of America Annual Meeting*, Austin TX.
- Kremer CT, Thomas MK, Litchman E, **Klausmeier CA**. Adapting to variable thermal environments: A trait-based, eco-evolutionary approach. *Ecological Society of America Annual Meeting*, Austin TX.
- Thomas MK, Kremer CT, **Klausmeier CA**, Litchman E. Ocean warming drives productivity changes and range shifts in the fundamental niches of marine phytoplankton. *Ecological Society of America Annual Meeting*, Austin TX.
- Stomp M, Litchman E, Mittelbach GG, Huisman J, **Klausmeier CA**. Large-scale biodiversity patterns in freshwater phytoplankton. *Ecological Society of America Annual Meeting*, Austin TX.
- Edwards KF, **Klausmeier C**, Litchman E. Evidence for a three-way tradeoff between nitrogen and phosphorus competitive abilities and cell size in phytoplankton. *Ecological Society of America Annual Meeting*, Austin TX.
- Klausmeier CA**, Litchman E. Modeling plankton seasonal succession. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico.
- Kremer CT, **Klausmeier CA**, Litchman E. Detecting the role of resource competition in driving nitrogen fixing cyanobacteria blooms: a mechanistic approach. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico.
- Litchman E, **Klausmeier CA**. Linking traits and ecological niches of phytoplankton to predict community structure and ecosystem functioning. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico.
- Edward KF, **Klausmeier CA**, Litchman E. Evidence for a fundamental three-way tradeoff in a trait compilation of marine and freshwater phytoplankton. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico.
- 2010 Litchman E, Schwaderer A, Yoshiyama K, de Tezanos Pinto P, Swenson N, **Klausmeier CA**. Eco-evolutionary differences in light utilization traits help explain phytoplankton distribution patterns. *Ecological Society of America Annual Meeting*, Pittsburgh PA.

- Thomas MK, Litchman E, **Klausmeier CA**. Phytoplankton temperature-response traits determine biogeography and seasonal succession patterns. *Ecological Society of America Annual Meeting*, Pittsburgh PA.
- Kremer CT, Litchman E, de Tezanos Pinto, Dworkin I, **Klausmeier CA**. Revisiting the causes of cyanobacteria blooms: a mixture model analysis of resource competition and abiotic factors. *Ecological Society of America Annual Meeting*, Pittsburgh PA.
- Ruppe D, **Klausmeier CA**. The effect of grazers on the vertical distribution of phytoplankton. *Ecological Society of America Annual Meeting*, Pittsburgh PA.
- Grman E, Robinson TMP, **Klausmeier CA**. Trade-based mutualism: How stoichiometry, uptake efficiencies, population sizes, and resource availability affect the price and the benefit of trade. *Ecological Society of America Annual Meeting*, Pittsburgh PA.
- 2009 Kremer CT, **Klausmeier CA**. Examining the evolutionary stability of coexistence: competition in fluctuating resource environments. *Ecological Society of America Annual Meeting*, Albuquerque NM.
- Duffy MA, Hall SR, **Klausmeier CA**. Resistance trade-offs, community context, and the evolution of host populations. *Ecological Society of America Annual Meeting*, Albuquerque NM.
- Steiner CF, **Klausmeier CA**, Litchman E. The effects of prey heterogeneity and enrichment on the transitory dynamics and persistence of aquatic food webs. *Ecological Society of America Annual Meeting*, Albuquerque NM.
- Mellard JP, Yoshiyama K, Litchman E, **Klausmeier CA**. The games algae play: competition for nutrients and light in poorly-mixed water columns. *Ecological Society of America Annual Meeting*, Albuquerque NM.
- 2008 Litchman E, **Klausmeier CA**. Trait-based community ecology of phytoplankton. *Ecological Society of America Annual Meeting*, Milwaukee WI.
- Mellard JP, Yoshiyama K, Litchman E, **Klausmeier CA**. The vertical distribution of phytoplankton in stratified water columns. *Ecological Society of America Annual Meeting*, Milwaukee WI.
- Yoshiyama K, Mellard JP, Litchman E, **Klausmeier CA**. Phytoplankton competition in stratified water columns. *Ecological Society of America Annual Meeting*, Milwaukee WI.
- Steiner CF, Schwaderer A, Huber V, Litchman E, **Klausmeier CA**. Periodically forced food chain dynamics: Model predictions and experimental validation. *Ecological Society of America Annual Meeting*, Milwaukee WI.
- Vellend M, Norberg J, **Klausmeier CA**, Urban MC, Loeuille N. Relative roles of species sorting and evolution for determining biodiversity under climate change. *Ecological Society of America Annual Meeting*, Milwaukee, WI.



- 2007 **Klausmeier CA**, Litchman E. A novel approach to seasonally-forced food web dynamics. *Ecological Society of America Annual Meeting*, San Jose, California.
- 2004 **Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Phytoplankton N:P stoichiometry. *Gordon Research Conference on Metabolic Basis of Ecology*, Lewiston, ME.
- 2003 **Klausmeier CA**, Litchman E. Seasonal succession in plankton communities. *Ecological Society of America Annual Meeting*, Savannah, GA.
- Litchman E, **Klausmeier CA**, Schofield O, Falkowski PG. Resource-based niches of phytoplankton functional groups. *Ecological Society of America Annual Meeting*, Savannah, GA.
- Klausmeier CA**, Litchman E, Daufresne T, Levin SA. Optimal N:P stoichiometry of phytoplankton. *ASLO Meeting*, Salt Lake City, UT.
- Litchman E, **Klausmeier CA**, van de Schootbrugge B, Schofield OM, Falkowski PG. Applying phytoplankton community models to understanding phytoplankton distributions in the paleocean. *ASLO Meeting*, Salt Lake City, UT.
- 2002 Litchman E, **Klausmeier CA**, van de Schootbrugge B, Schofield O, Falkowski PG. Applying phytoplankton community models to understanding phytoplankton distributions in the paleocean. *JGOFs Synthesis and Modeling Project Workshop*, Woods Hole, MA.
- Klausmeier CA**, Daufresne T. Functional stoichiometry. *Biocomplexity<sup>2</sup> Meeting Spring*, Princeton, NJ.
- 2001 **Klausmeier CA**, Tilman D. Competition in heterogeneous landscapes. *Ecological Society of America Annual Meeting*, Madison, WI.
- 2000 Litchman E, Bossard P, **Klausmeier CA**. Phytoplankton resource competition: effects of variable nutrient uptake rates. *ASLO Annual Meeting*, Copenhagen, Denmark.
- 1999 **Klausmeier CA**. Regular and irregular patterns in semiarid vegetation. *NATO-ASI on Mathematical Problems Arising from Biology*, Toronto, Ontario.
- Klausmeier CA**. Pattern formation in semiarid vegetation. *Institute for Mathematics and its Applications, Workshop on Local Interaction and Global Phenomena in Vegetation and Other Systems*, Minneapolis, MN.
- Klausmeier CA**, Litchman E. Phytoplankton competition for light and nutrient in unmixed and partially mixed water columns. *Ecological Society of America Annual Meeting*, Spokane, WA.
- Fargione JE, **Klausmeier CA**, Lehman CL. Community invasibility is increased by habitat destruction. *Ecological Society of America Annual Meeting*, Spokane, WA.
- 1998 Litchman E, **Klausmeier CA**. Competition and coexistence under fluctuating light: model analysis. *ASLO Ocean Sciences Meeting*, San Diego, CA.

**Klausmeier CA.** Pattern formation in semiarid vegetation: tiger bush. *Gordon Research Conference on Theoretical Biology and Biomathematics*, Tilton, NH.

**Klausmeier CA.** Pattern formation in semiarid vegetation: tiger bush. *Ecological Society of America Annual Meeting*, Baltimore, MD.

1997 **Klausmeier CA.** Extinction in multispecies and spatially-explicit models of habitat destruction. *Ecological Society of America Annual Meeting*, Albuquerque, NM.

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## Invited Workshops & Working Groups

2019– **Causes and Consequences of Functional Rarity from Local to Global Scale**, *Centre for Synthesis and Analysis of Biodiversity (CESAB)*, Montpellier, France.

2017 **First Symposium on Functional Marine Biodiversity**, *Helmholtz Institute for Functional Marine Biodiversity*, Oldenburg, Germany.

2016 **Global Co-evolution of the Ocean Environment and its Ecology**, *University of Bristol*, Bristol, UK.

2014–15 **Advancing the Ecological Foundations of Sustainability Science**, *Tansley Working Group*, Silwood Park, UK.

2013 **sDiv Workshop sTOICHFUN**, *Synthesis Centre for Biodiversity Sciences (sDiv)*, Leipzig, Germany.

2013 **International Workshop on Trait-based Approaches to Ocean Life**, *Centre for Ocean Life*, Copenhagen, Denmark.

2013 **Innovative Approaches in Marine Environment Modelling (AIMEN)**, *Labex MER*, Brest, France.

2013 **Microbial Ecology and Biogeochemistry of Oxygen-Deficient Marine Waters**, Santa Cruz, Chile.

2013 **Merging Complex “-omic” Data and Computational Ecosystem Models**, *Gordon and Betty Moore Foundation*, Miami FL.

2010–2012 **Food Web Dynamics and Stoichiometric Constraints in Meta-ecosystems**, *NIM-BioS*, Knoxville TN.

2010 **Advanced School in Complexity, Adaptation and Emergence in Marine Ecosystems**, *Abdus Salam International Centre for Theoretical Physics*, Trieste, Italy.

2010 **IMBER IMBIZO II**, Crete, Greece.

2009 **LEREC Workshop “Modeling Aquatic Systems”**, Umeå, Sweden.

2008 **National Academies Keck Futures Initiative Conference: Complex Systems**, Irvine CA.

2008 **Workshop on Plankton Complexity**, *Stazione Zoologica Anton Dohrn*, Naples, Italy, Discussion Leader.

- 2007 **TraitNET, NSF Research Coordination Network**, *Columbia University*, New York NY.
- 2006–2007 **Evolving Metacommunities**, *National Center for Ecological Analysis and Synthesis*, Santa Barbara CA.
- 2004 **Workshop on Present and Future of Ecological Stoichiometry (Woodstoich 2004)**, Finse, Norway.

## Teaching

### International Summer Schools

- 2019 **Trait-Based Eco-Evolutionary Modeling**, iDiv short course, Leipzig, Germany. 2 days.
- 2016 **Global Co-evolution of the Ocean Environment and its Ecology Summer School**, Bristol, UK. 1 hour lecture “Resource Competition Theory”.
- 2014 **Modelling and Analysis of Innovation and Competition Processes Summer School**, Milan, Italy, with S. Geritz. 3 days.

### Michigan State University

- Fall 2020 **Population & Community Ecology** (IBIO/PLB 896), with E. Litchman (15/30 lectures). 4 credits, 28 students.
- Fall 2018 **Population & Community Ecology** (IBIO/PLB 896), with E. Litchman (15/30 lectures). 4 credits, 25 students.
- Fall 2017 **Population & Community Ecology** (IBIO/PLB 896), with E. Litchman (15/30 lectures). 4 credits, 21 students.
- Spring 2017 **Metacommunity Ecology** (FW 893), with P. Zarnetske and Q. Read. 1 credit, 9 students.
- Fall 2016 **Population & Community Ecology** (IBIO/PLB 896), with G. Mittelbach and E. Litchman (5/30 lectures). 4 credits, 23 students.  
**Population & Community Ecology Theory Lab** (PLB 898). 1 credit (3 hours/wk), 6 students.
- Fall 2015 **Population & Community Ecology** (ZOL/PLB 896), with G. Mittelbach and E. Litchman (4/30 lectures). 4 credits, 17 students.  
**Population and Community Ecology Theory Lab** (PLB 898). 1 credit (3 hours/wk), 5 students.
- Spring 2015 **Quantitative Microbial Ecology & Evolution** (ZOL 890), with E. Litchman and S. Evans. 1 credit, 14 students.
- Fall 2014 **Population & Community Ecology Theory Lab** (PLB 898). 1 credit (3 hours/wk), 5 students.

- Spring 2014 **Contemporary Concepts in Ecology** (PLB 802), with Gary Mittelbach. 1 credit, 7 students.
- Fall 2013 **Population & Community Ecology Theory Lab** (PLB 898). 1 credit (3 hours/wk), 4 students.
- Integrative Topics in Plant Biology** (PLB 803), with Y. Shachar-Hall. 2 credits, 20 students.
- Summer 2013 **ELME: Metacommunity Ecology & Evolution**, with M. Leibold. Non-credit advanced workshop (3 weeks), 26 students.
- Fall 2012 **Population & Community Ecology Theory Lab** (PLB 898). 1 credit (3 hours/wk), 16 students.
- Summer 2011 **ELME: Adaptive Dynamics & Game Theory** (PLB 809-431), with S. Geritz. 1–3 credits (3 weeks), 6 students enrolled (18 non-credit students).
- Fall 2010 **Population & Community Ecology** (ZOL 896), with E. Litchman. 4 credits, 20 students.
- Quantitative Microbial Ecology & Evolution** (PLB 800/ZOL 895/MMG 890), with E. Litchman, J. Lennon, and J. Lau. 1 credit, 9 students.
- Summer 2010 **ELME: Theoretical Population & Ecosystem Ecology** (Math 490). 1 credit (1 week), 10 students.
- Fall 2009 **Advances in Microbial Community Ecology & Biogeography** (PLB 800), with E. Litchman and J. Lennon. 1 credit, 7 students.
- Population & Community Ecology Theory Lab** (PLB 809). 1 credit (3 hours/wk), 11 students.
- Summer 2009 **ELME: Adaptive Dynamics & Game Theory** (MTH 490). 1 credit (1 week), 11 students.
- Fall 2008 **Population & Community Ecology Theory Lab** (PLB 809). 1 credit (3 hours/wk), 5 students.
- Summer 2008 **ELME: Theoretical Population & Ecosystem Ecology** (Math 490). 1 credit (1 week), 14 students.
- Fall 2007 **Population & Community Ecology Theory Lab** (PLB 809). 1 credit (3 hours/wk), 8 students.
- Summer 2007 **ELME: Theoretical Population & Ecosystem Ecology** (MTH 490). 1 credit (1 week), 17 students.
- Spring 2007 **Mathematical Biology** (MTH 370), with C. Chiu. 3 credits, 10 students.
- Spring 2006 **Exploring the Roles of Heterogeneity in Plant Communities** (PLB 802-4), with K. Gross. 1 credit, 7 students.

## Georgia Institute of Technology

- Spring 2005 **Mathematical Biology** (Math/Biol 4755). 3 credits, 25 students.  
Spring 2004 **Theoretical Ecology** (Biol 4423/8803). 3 credits, 18 students.  
Fall 2003 **Mathematical Biology** (Math/Biol 4755). 3 credits, 25 students.

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## Students and Postdocs Supervised

### Postdoctoral researchers

- 2019– **Jonas Wickman**.  
2016– **Thomas Koffel**.  
2016–2020 **Colin Kremer**, *Current position: Assistant Professor, Department of Ecology & Evolutionary Biology, UCLA*.  
2017–2019 **Masatoshi Katabuchi**, *Current position: Associate Professor, Xishuangbanna Tropical Botanical Garden, Xishuangbanna, China*.  
2016–2018 **Kaito Umemura**, *Current position: Postdoc, Harte Lab, University of California Berkeley*.  
2015–2017 **Zepeng Sun**, *Current position: Research Scientist, Hitgen, Chengdu, China*.  
2016–2017 **Ghjuvan Grimaud**, *Current position: CEO & Co-Founder, BioMathematica*.  
2015–2017 **Simon Stump**, *Current position: Carvana*.  
2013–2014 **Sabine Wollrab**, *Current position: Group Leader, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Lake Stechlin, Germany*.  
2013–2014 **Maria Stockenreiter**, *Current position: Assistant Professor, University of Munich, Munich, Germany*.  
2010–2013 **Kyle Edwards**, *Current position: Associate Professor, University of Hawaii, Manoa HI*.  
2009–2010 **Donald Schoolmaster**, *Current position: Research Associate, USGS, New Orleans LA*.  
2008 **Maayke Stomp**, *Deceased*.  
2006–2008 **Kohei Yoshiyama**, *Current position: Associate Professor, Shiga Prefectural University, Hikone, Japan*.  
2006–2008 **Mary Anne Evans**, *Current position: Research Ecologist, USGS, Ann Arbor MI*.  
2005–2008 **Chris Steiner**, *Current position: Associate Professor, Wayne State University, Department of Biology, Detroit MI*.  
2006–2007 **Anne Schwaderer**.

### Graduate students

- 2021– **Nasser Mohammed**, *Ph.D. student, MSU Department of Integrative Biology.*
- 2015–2021 **Ravi Ranjan**, *Ph.D. student, MSU Department of Plant Biology.*
- 2009–2016 **Elizabeth Miller**, *Ph.D., MSU Department of Plant Biology*, Current position: Post-doc, Bohannon Lab, University of Oregon.
- 2009–2014 **Colin Kremer**, *Ph.D., MSU Department of Plant Biology*, Current position: Assistant Professor, Department of Ecology & Evolutionary Biology, UCLA.
- 2003–2010 **Jarad Mellard**, *Ph.D., Georgia Tech School of Biology and MSU Department of Plant Biology*, Current position: Associate Professor, Department of Arctic & Marine Biology, University of Tromsø.
- 2003–2005 **Liliana Lettieri**, *Ph.D. student, Georgia Tech School of Biology.*

#### Undergraduate students

- 2018, 2019 **Akshata Rudrapatna**, *Systems Biology & Origins Sciences major, Case Western Reserve University.*
- 2018, 2019 **Brian Lerch**, *Biology & Mathematics major, Case Western Reserve University.*
- 2015–2016 **Evan Johnson**, *Biology & Mathematics major, Kalamazoo College.*
- 2009 **Dennis Ruppe**, *Mathematics major, SUNY Geneseo.*
- 2004–2005 **Wes Angel**, *Biology/ISyE major, Georgia Tech.*
- 2004–2005 **Julie Bjornstad**, *Mathematics major, Georgia Tech.*
- 2004–2005 **Leo Dachevsky**, *Electrical and Computer Engineering major, Georgia Tech.*

#### Graduate committees

- 2020– **Veronica Frans**, *MSU, Department of Fisheries & Wildlife.*
- 2014– **Lauren Simmons**, *University of Wisconsin, Milwaukee, Department of Biology.*
- 2016–2020 **Laura Twardochleb**, *MSU, Department of Fisheries & Wildlife.*
- 2012–2018 **Daniel O'Donnell**, *MSU, Department of Integrative Biology.*
- 2012–2017 **Pat Hanly**, *MSU, Department of Integrative Biology.*
- 2013–2016 **Jacob Nalley**, *MSU, Department of Zoology.*
- 2014–2015 **Daniel Brickley**, *MSU, Department of Plant Biology.*
- 2013–2015 **Masoud Mirmomeni**, *MSU, Department of Computer Science.*
- 2007–2013 **Mridul Thomas**, *MSU, Department of Zoology.*
- 2013 **Melanie Davis**, *MSU, Department of Fisheries & Wildlife.*
- 2013 **Justin Marleau**, *McGill University, Department of Biology*, External doctoral thesis reader.
- 2010–2013 **Nathaniel Walton**, *MSU, Department of Entomology.*

- 2011–2012 **Andreas Nørreslet**, *Technical University of Denmark, DTU Aqua*, M.S. Thesis.
- 2011–2012 **Lai Zhang**, *Technical University of Denmark, Department of Mathematics and DTU Aqua*.
- 2010–2012 **Megan Larsen**, *MSU, Department of Microbiology*.
- 2009–2011 **Emily Grman**, *MSU, Department of Plant Biology*.
- 2006–2010 **Todd Robinson**, *MSU, Department of Plant Biology*.
- 2008 **Maayke Stomp**, *University of Amsterdam*.
- 2004–2005 **Alan Wilson**, *Georgia Tech, School of Biology*.
- Visiting Students**
- 2017 **Amy Kendig**, *University of Minnesota*.
- 2014, 2015, **Thomas Koffel**, *INRA Montpellier*.
- 2016–2017
- 2013 **Matthew Osmond**, *McGill University*.
- 2012 **Helene Weigang**, *University of Vienna*.
- 2011 **Jake Gillette**, *SUNY ESF*.
- 2010 **Jason Cepela**, *MSU*.
- 2010 **Kateryna Rybachuk**.
- 2008–2009 **Colin Kremer**, *SUNY Geneseo*.
- 2008, 2009, **Yonatan Natan**, *Ben Gurion University*.
- 2011
- 2007 **Veronika Huber**, *Leibniz Institute of Freshwater Ecology and Inland Fisheries*.
- 2007 **Hagai Guterman**, *Ben Gurion University*.
- 2007 **Asaf Sadeh**, *Haifa University*.

## Service

### Editorial

- Ongoing Ad hoc journal and proposal reviewer (circa 6 per year)
- 2006–2010, Associate Editor, *The American Naturalist*
- 2014–
- 2015, 2017 Tenure & Promotion Reviews, other institutions
- 2016 Member, Helmholtz Institute for Functional Marine Biology Review Panel
- 2008–2015 Associate Editor, *Journal of Theoretical Biology*

- 2007, 2008, NSF Panelist
- 2012, 2015
- 2014 Panelist, German Research Foundation (DFG) Priority Program DynaTrait
- 2012–2013 Co-organizer, Special Issue in Honor of Peter Abrams, Journal of Theoretical Biology
- 2012–2013 External Member, Theoretical Ecology Faculty Search Committee, Umeå University
- 2010–2012 Member, Faculty of 1000, Theoretical Ecology section

### Advisory Boards

#### Organizational

- 2019 Co-organizer, Mini-Symposium on “Niche theory”, MME Meeting
- 2018 Co-organizer, Species Session on “Trait-Based Community Organization Along Environmental Gradients: Ecology & Evolutionary Perspectives”, ASLO Meeting
- 2014 Co-organizer, Special Session on “Impact of Microbial Biodiversity on Aquatic Ecosystem Functioning and Biogeochemistry”, ASLO Meeting
- 2014 Scientific committee member, Innovations in Collaborative Modeling Conference, MSU
- 2013 Scientific committee member, International Workshop on Trait-based Approaches to Ocean Life workshop, Copenhagen Denmark
- 2012 Co-organizer, Special Session on “Vertical structure of aquatic ecosystems: observations, experiments, and theories”, ASLO Meeting
- 2009 Co-organizer, Special Session on “Trait-Based Approaches to Plankton Ecology”, ASLO Meeting
- 2005 Co-organizer, Special Session on “Advances at the Interface of Theoretical and Empirical Plankton Ecology”, ASLO Meeting

#### Michigan State University

- 2016–2018, Member, Reappointment, Promotion & Tenure Committee, Dept. of Plant Biology
- 2020–
- 2016–2018, Member, Academic Programs Committee, KBS
- 2020–
- 2010–2011, KBS Representative to Plant Sciences Recruiting Committee
- 2013–2018,
- 2020–
- 2020–2021 Member, Ecology & Evolutionary Biology Faculty Search Committee, KBS
- 2005–2006, Member, Graduate Committee, KBS
- 2013–2016,
- 2020–
- 2016–2018 Chair, Graduate Committee, KBS

*May 5, 2021*



January 25, 2017 Panelist, Getting a National Science Foundation Grant, OVPRGS

2014–2015 Member, Quantitative Ecology/Evolution Faculty Search Committee, EEBB

2013–2015 Member, Faculty Advisory Committee, KBS

2012–2015 Chair, Housing Committee, KBS

2012–2013 Member, Web Committee, KBS

2012–2013 Member, Aquatic Microbial Ecologist Faculty Search Committee, KBS

2010–2011 Chair, Academic Program Planning Committee, KBS

Fall 2008, Member, College of Natural Sciences Faculty Advisory Committee

Spring 2010,

Spring 2011

2008–2010 Member, Sociologist Faculty Search Committees, KBS

2008–2009 Member, Web Committee, Dept. of Plant Biology

2007 Member, Associate Director for Education and Outreach Search Committee, KBS

2006 Co-organizer, Dept. of Plant Biology Retreat

2006–2009 Chair, Web Committee, KBS

2005–2006 Member, Plant Ecologist Search Committee, KBS & Dept. of Plant Biology

[Georgia Institute of Technology](#)

2004–2005 Advisor, Biology Graduate Student Association

2004–2005 Seminar Coordinator, School of Biology

2004 Member, Bioinformatics Search Committee