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 Courtesy Professor of Physics
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I. Earned Degrees

| | | |
|---------------|-----------|-------------------------------------|
| A.B. Physics | 1993-1997 | Princeton University, Princeton, NJ |
| Ph.D. Physics | 1997-2003 | MIT (advisor: D. Rothman) |

II. Employment History

| | |
|--------------|---|
| 2003-2005 | NSF Interdisciplinary Informatics Postdoctoral Fellow, Ecology & Evolutionary Biology, Princeton University (advisor: S. Levin) |
| 2005-2006 | Research Staff, Ecology & Evolutionary Biology, Princeton University |
| 2006 | Associate Research Scholar, Ecology & Evolutionary Biology, Princeton University |
| 2007-present | Full Professor (2016-), Associate Professor (2012-2016, received tenure), and Assistant Professor (2007-2012), School of Biological Sciences, Georgia Institute of Technology |
| 2007-present | Courtesy Professor, School of Physics, GT |
| 2016-present | Courtesy Professor, School of Electrical and Computer Engineering, GT |
| 2015-present | Founding Director of the Interdisciplinary Quantitative Biosciences Graduate Program at the Georgia Institute of Technology |
| 2020-2023 | Patton Distinguished Professor, Georgia Institute of Technology |

III. Honors and Awards

III.1 Awards & Recognition

Society Awards

- 2019 Elected Fellow of the American Academy of Microbiology
2017 Elected Fellow of the American Association for the Advancement of Science (AAAS) for contributions in ‘quantitative viral ecology’.

National and International Awards and Recognition

- 2021-2023 Awarded Charles Blaise Pascal International Chair of Excellence, Ecole Normale Supérieure, Ile-de-France Region, France (2019 competition program)
2018 Montgomery Blair High School Mathematics and Science Magnet Distinguished Alumni Award, Silver Spring, MD
2016 Best Postgraduate Textbook Prize Awarded by the Royal Society of Biology for Quantitative Viral Ecology: Dynamics of Viruses and Their Microbial Hosts (Princeton University Press, 2015)
2014-2020 Simons Foundation Investigator in Ocean Processes and Ecology
2014 Honorable Mention, CDC Annual Statistical Awards, Applied Section (2013)
2013-2014 Visiting Associate Professor, Department of Ecology and Evolutionary Biology, University of Arizona
2012 Opponent, PhD Defense, Niels Bohr Institute, Adviser: Kim Sneppen
2008-2013 James S. McDonnell Foundation Award in 21st Century Science Initiative: Studying Complex Systems
2007-2013 Burroughs Wellcome Fund Career Award at the Scientific Interface: *Evolutionary Ecology of Bacterial Viruses*
2006 M.L. Shifman scholarship, Microbial Diversity course, Marine Biological Laboratory
2003-2005 NSF Postdoctoral Fellowship in Interdisciplinary Informatics
2003 Award for Excellence in Teaching, Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology
1999 NATO Advanced Summer Institute International Travel Award
1997-2000 National Defense Science and Engineering Graduate Fellowship
1996 & 1997 Allen Shenstone Goodrich Award for “outstanding work in experimental physics,” Dept. of Physics, Princeton University
1993-1997 National Science Scholar, Maryland State Department of Education

Georgia Tech Awards and Recognition

- 2021 Georgia Tech Outstanding Achievement in Research Program Development (co-awarded with Anton Bryskin, Gregory Gibson, Pinar Keskinocak, Michael Shannon, Loren Williams and JulieAnne Williamson as part of integrative Covid-19 responses at GT)
2021 Georgia Tech Sigma Xi Best Faculty Paper of the Year Award (Chande et al., Nature Human Behavior, 2020; joint award w/Prof. Clio Andris)
2020-2023 Patton Distinguished Professorship, Georgia Institute of Technology (term award)
2020 Georgia Tech Class of 1934 Outstanding Interdisciplinary Activities Award
2020 Georgia Tech Faculty of the Year, Graduate Student Government Association
2017 Petit Institute for Bioengineering and Biosciences ‘Above and Beyond’ Interdisciplinary Activities Award, Georgia Tech

III.2 Editorial Boards

- 2019-present Editorial Board, mBio
2017-present Editorial Board, Virus Evolution

| | |
|--------------|---|
| 2010-present | Editorial Board, Journal of Theoretical Biology |
| 2018-2020 | Senior Editor, ISME Journal |
| 2017-2019 | Editorial Board, Scientific Reports |
| 2015-2018 | Editorial Board, mSystems |
| 2011-2018 | Faculty Member, Theoretical Ecology, F1000 |
| 2012-2017 | Review Editor, Frontiers in Virology |

III.3 Advisory Boards & Steering Committees

| | |
|--------------|---|
| 2014-present | School of Biological Sciences Advisory Committee |
| 2014-2019 | Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee |
| 2014-2017 | Advisory Board Member, National Institute for Mathematical and Biological Synthesis |

III.4 External Review Committees

| | |
|------|---|
| 2021 | External Review Committee, Department of Computational Medicine, UCLA |
| 2019 | External Review Committee, NRT in Ecological Informatics, Northern Arizona University |

IV. Research, Scholarship, and Creative Activities

Google Scholar profile at http://bit.ly/jsweitz_gscholar.

Total publications: 135 refereed articles and 1 solo-author book

Total citations: >8000, h-index: 51 as of 3/2021; 1300+ citations in 2020

indicates Weitz group member

A1. Published Books, Parts of Books, and Edited Volumes

- 1*. **Weitz, JS.** (2015) Quantitative Viral Ecology: Dynamics of Viruses and Their Microbial Hosts. Princeton University Press, 360 pp.

A2. Books in Preparation (to be submitted March 8, 2021)

1. **Weitz, JS** (in prep) Quantitative Biosciences: Dynamics Across Molecules, Organisms, to Ecosystems. Princeton University Press (under contract, slated publication Spring 2022, ~350pp)
2. **Weitz, JS** and Taylor, B. (in prep) Quantitative Biosciences in MATLAB: Dynamics Across Molecules, Organisms, to Ecosystems. Princeton University Press (under contract, slated publication Spring 2022, ~250pp)
3. **Weitz, JS** and Dominguez-Mirazo, M. (in prep) Quantitative Biosciences in R: Dynamics Across Molecules, Organisms, to Ecosystems. Princeton University Press (under contract, slated publication Spring 2022, ~250pp)
4. **Weitz, JS**, English, N., Lee, A., and Zamani, A. (in prep) Quantitative Biosciences in Python: Dynamics Across Molecules, Organisms, to Ecosystems. Princeton University Press (under contract, slated publication Spring 2022, ~250pp)

B. Refereed Publications and Submitted Articles

B1. Manuscripts in Review/Revision

In review/revision/preprint

1. Gibson, G., **Weitz, J.S.**, Shannon, M., et al. Implementation of a Surveillance-to-Diagnostic Testing Program for Asymptomatic SARS-CoV-2 Infections on a Public University Campus - Georgia Institute of Technology, Atlanta, GA: August 1–December 3, 2020. *preprint*
2. Rose, C., Medford, A.J., Goldsmith, C.F., Vegge, T., **Weitz, J.S.**, Peterson, A.A. Population susceptibility variation and its effect on contagion dynamics, *preprint*

3. #Li, G., #Shivam, S., Hochberg, M.E., Wardi, Y., **Weitz, J.S.**, Disease-dependent interaction policies to support health and economic outcomes during the COVID-19 epidemic. *iScience*, in revision
4. #Beckett, S.J., #Dominguez-Mirazo, M., Lee, S., Andris, C., and **Weitz, J.S.** Spread of COVID-19 through Georgia, USA. Near-term projections and impacts of social distancing via a metapopulation model, *Epidemics*, in revision
5. #Muratore, D., Boysen, A.K., Harke, M.J., Becker, K.W., Casey, J.R., Coesel, S.N., Mende, D.R., Wilson, S.T., Aylward, F.O., Eppley, J.M., Vislova, A., #Peng, S., #Rodriguez-Gonzalez, R.A., #Beckett, S.J., Armbrust, E.V., DeLong, E.F., Karl, D.M., White, A.E., Zehr, J.P., Van Mooy, B.A.S., Dyhrman, S.T., Ingalls, A.E., **Weitz, J.S.**, Community-scale Synchronization and Temporal Partitioning of Gene Expression, Metabolism, and Lipid Biosynthesis in Oligotrophic Ocean Surface Waters, *Nature Ecology & Evolution*, in revision
6. #Muratore, D. and **Weitz, J.S.** Infect while the iron is scarce: nutrient-explicit phage-bacteria games. *Theoretical Ecology*, in review
7. Kraay, A.N.M, Nelson, K.N, Zhao, C., **Weitz, J.S.**, Lopman, B.A. Modeling serological testing to inform relaxation of social distancing for COVID-19 control. *Nature Communications*, in revision

2021

1. Kayoko Shioda, Max SY Lau, Alicia NM Kraay, Kristin N Nelson, Aaron J Siegler, Patrick S Sullivan, Matthew H Collins, **Joshua S Weitz**, Benjamin A Lopman. (in press) Estimating the cumulative incidence of SARS-CoV-2 infection and the infection fatality ratio in light of waning antibodies, *Epidemiology*
2. Correa, A.M.S., Buchan A., Sullivan, M.B., and **Weitz, J.S.** (in press). Rules of life for viruses of microorganisms. *Nat. Reviews Microbiology*
3. #Eksin, C., Ndeffo-Mbah, M., and **Weitz, J.S.** (2021) Reacting to outbreaks at neighboring localities, *J. Theor. Biol.*
4. Burmeister, A.R., Hansen, E., Cunningham, J.E., Regio, E.H., Turner, P.E., **Weitz, J.S.**, Hochberg, M.E. (2021) Fighting microbial pathogens by integrating host ecosystem interactions and evolution. *BioEssays*,

2020

5. Park, S W., Bolker, B. M., Champredon, D. Earn, D.J., Li, M., **Weitz, J.S.**, Grenfell, B.T., and Dushoff, J.D. (in press) Forward-looking serial intervals correctly link epidemic growth to reproduction numbers. *PNAS*.
6. **Weitz, J.S.**, Park, S.W., Eksin, C., Dushoff, J. (in press) Awareness-Driven Behavior Change Can Shift the Shape of Epidemics Away from Peaks and Towards Plateaus, Shoulders, and Oscillations. *PNAS*.
7. Chande, A. Lee, S., Harris, M., Nguyen, Q., Beckett, S.J., Hilley, T., Andris, C. **Weitz, J.S.** (in press) Real-time, interactive website for US-county level Covid-19 event risk assessment. *Nature Human Behavior*. 4: 1313-1319.
8. Yanni, D., Jacobeen, S., Marquez-Zacarias, P., **Weitz, J.S.**, Ratcliff, W.C., Yunker, P.J (2020) Topological constraints in early multicellularity favor reproductive division of labor. *eLife*,
9. Becker, K.W., Harke, M.J., Mende, D.R., #Muratore, D. , **Weitz, J.S.**, DeLong, E.F., Dyhrman, S.T. van Mooy, B.A.S. (2020) Combined pigment and metatranscriptomic analysis reveals highly synchronized diel patterns of phenotypic light response across domains in the open oligotrophic ocean. *ISME J*.
10. Lachance, J.L., Simonti, C.N., **Weitz, J.S.** (2020) Large sample spaces do not imply biological systems are ‘fine-tuned’. *Journal of Theoretical Biology*.
11. Mruwat, N., Carlson, M. Goldin, S., Ribalet, R., Kirzner, S., Hulata, Y., #Beckett, S.J., Shitrit, D., **Weitz, J.S.**, Armbrust, E.V., Lindell, D.I. (2020) A single-cell polony method reveals low levels of infected Prochlorococcus in oligotrophic waters despite high cyanophage abundances. *ISME J*

12. Park, S.W., Bolker, B.M., Champredon, D., Earn, D.J., Li, M., **Weitz, J.S.**, Grenfell, B.T., and Dushoff, J.D. (2020) Reconciling early-outbreak preliminary estimates of the basic reproductive number and its uncertainty: framework and applications to the novel coronavirus (2019-nCoV) outbreak. *J. Roy Soc. Interface*.
13. #Li, G., #Leung, C.Y., Wardi, Y., Debarbieux, L., and **Weitz, J.S.** (2020) Optimizing the Timing and Composition of Therapeutic Phage Cocktails: A Control-theoretic Approach. *Bull. Math. Biol.* 82:75.
14. #Li, G., #Cortez, M.H. and **Weitz, J.S.** (2020) When to be temperate: on the benefits of lysogeny vs. lysis. *Virus Evolution*
15. **Weitz, J.S.**, #Beckett, S.J., #Coenen, A.R., #Demory, D., #Dominguez-Mirazo, M., Dushoff, J., #Leung, C.Y., #Li, G., #Magalie, A., #Park, S.W., #Rodriguez-Gonzalez, R., #Shivam, S. and #Zhao, C. (2020) Modeling Immune Shielding in Reducing COVID-19 Epidemic Spread. *Nature Medicine*. 26: 849-854.
16. Park, S.W., Cornforth, D.M., Dushoff, J. and **Weitz, J.S.** (2020) The time scale of asymptomatic transmission affects estimates of epidemic potential in the COVID-19 outbreak. *Epidemics*
17. Azimi, S., Roberts, A.E.L., #Peng, S., **Weitz, J.S.**, McNally, A., Brown, S.P., Diggle, S.P. (2020) Allelic polymorphism shapes collective phenotypes in evolving *Pseudomonas aeruginosa* populations. *ISME J*
18. #Coenen, A.R., Hu, S., Luo, E., #Muratore, D., **Weitz, J.S.** (2020) A primer on analyzing microbiome high-resolution time series. *Frontiers in Genetics*
19. #Demory, D., Liu, R., Chen, Y., Zhao, F., #Coenen, A., Zeng, Q., and **Weitz, J.S.** (2020) Linking light dependent life history traits with population dynamics for *Prochlorococcus* and cyanophage. *mSystems*.
20. #Rodriguez-Gonzalez, R.A., #Leung, C-Y., Chan, B., Turner, P.E., **Weitz, J.S.** (2020) Quantitative models of phage-antibiotic combination therapy. *mSystems*. 5: e00756-19.

2019

21. Barone, B., #Coenen, A., #Beckett, S.J., Dennis J. McGillicuddy, Jr., **Weitz, J.S.**, and Karl, D. (2019) The impact of sea surface height on biogeochemical dynamics at Station ALOHA. *Journal of Marine Research*. 77 S1:215-245
22. #Dominguez-Mirazo, M., #Jin, R., **Weitz, J.S.** (2019) Functional and comparative genomic analysis of integrated prophage-like sequences in *Candidatus Liberibacter asiaticus*. *mSphere*
23. **Weitz, J.S.**, #Li, G., #Gulbudak, H., #Cortez, M.H., and Whitaker, R.J. (2019) Viral invasion fitness across a continuum from lysis to latency. *Virus Evolution*. 5: vez006
24. Talmy, D., #Beckett, S.J., Taniguchi, D., Brussaard, C.P.D., **Weitz, J.S.**, and Follows, M.J. (2019) An empirical model of carbon flow through marine viruses and microzooplankton grazers. *Environmental Microbiology*. doi: 10.1111/1462-2920.14626
25. Talmy, D., #Beckett, S.J., #Zhang, A., Taniguchi, D., **Weitz, J.S.**, and Follows, M.J. (2019) Contrasting controls on microzooplankton grazing and viral infection of microbial prey. *Frontiers in Marine Science*. 6: 182.
26. #Lin, Y. and **Weitz, J.S.** (2019) Spatial interactions and oscillatory tragedies of the commons. *Physical Review Letters*. 122: 148102
27. #Eksin, C., #Paarporn, K., and **Weitz, J.S.** (2019) Systematic biases in disease forecasting - the role of behavior change. *Epidemics*. doi: 10.1016/j.epidem.2019.02.004
28. Park, S.W., Champredon, D., **Weitz, J.S.**, and Dushoff, J. (2019) Exploring how generation intervals link strength and speed of epidemics. *Epidemics*. doi: 10.1016/j.epidem.2018.12.002.
29. #Leung, C.Y. and **Weitz, J.S.** (2019) Not by (good) microbes alone: towards immunocommenseal therapies. *Trends in Microbiology*. 27: 294-302.
30. #Al-Rasheed, H., #Jin, R., and **Weitz, J.S.** (2019) Caution in inferring viral strategies from abundance correlations in marine metagenomes. *Nature Communications*. 10: 501.

31. #Gulbudak, H. & **Weitz, J.S.** (2019) Heterogeneous virus strategies promote coexistence in virus-microbe systems, *J. Theor. Biol.* 462: 65-84.

2018

32. #Paarporn, K., #Eksin, C., **Weitz, J.S.**, and Wardi, Y. Optimal control policies for evolutionary dynamics with environmental feedback. *IEEE Conference on Decision and Control*
33. #Taylor, B.P, **Weitz, J.S.**, Brussaard, C.P.D., and Fischer, M.G. (2018) Quantitative infection dynamics of *Cafeteria roenbergensis* virus. *Viruses* 10: 468.
34. #Beckett, S.J. and **Weitz, J.S.** (2018) The effect of strain level diversity on robust inference of virus-induced mortality. *Front. Microbiol.* 9: 1850.
35. #Coenen, A and **Weitz, J.S.** Limitations of correlation-based inference in complex virus-microbe communities. *mSystems* 3: e00084-18.
36. #Paarporn, K., #Eksin, C. **Weitz, J.S.** (2018) Information sharing for a coordination game in fluctuating environment. *J. Theor. Biol.* 454: 376-385.
37. Munson-McGee, J.H, #Peng, S., Dewerff, S, Stepanauskas, R., Whitaker, R.J, **Weitz, J.S.**, Young, M.J. (2018) A virus or more in (nearly) every cell: ubiquitous virus-host interactions in extreme environments. *The ISME Journal.* 12: 1706-1714.

2017

38. **Weitz, J.S.**, #Beckett, S.J., Brum, J.R., Cael, B.B., and Dushoff, J. (2017) Lysis, lysogeny, and virus-microbe ratios. *Nature.* 549: E1-E3.
39. Zehr, J., **Weitz, J.S.**, Joint, I. (2017) How microbes survive in the open ocean. *Science.* 357: 646-647.
40. #Leung, C.Y. & **Weitz, J.S.** (2017) Modeling the synergistic elimination of bacteria by phage and the innate immune system. *J. Theor. Biol.* 429: 241-252.
41. Roach, D.R., #Leung, C.Y., Henry, M., Morello, E., #Singh, D., Di Santo, J.P., ***Weitz, J.S.**, and *Debarbieux, L. (2017). Synergy between the host immune system and bacteriophage is essential for successful phage therapy against an acute respiratory pathogen. *Cell Host and Microbe.* (*co-corresponding). 22: 38-47.
42. #Paarporn, K., #Eksin, C., **Weitz, J.S.** and Shamma, J. (2017) Networked SIS epidemics with awareness. *IEEE Transactions on Computational Social Systems.* 4: 93-103
43. #Beckett, S.J. and **Weitz, J.S.** (2017) Disentangling niche competition from grazing mortality in phytoplankton dilution experiments. *PLoS One.* 12: e0177517
44. #Eksin, C., Shamma, J., and **Weitz, J.S.** (2017) Disease dynamics in a stochastic network game: a little empathy goes a long way in averting outbreaks. *Scientific Reports* 7: 44122.
45. #Bucksch, A., Schneider, H., Merchant, N. and **Weitz, J.S.** (2017) Overcoming the law of the hidden in cyberinfrastructures. *Trends in Plant Science.* 22: 117-123.
46. Sullivan, M.B., **Weitz, J.S.**, Wilhelm, S.W. (2017) Viral ecology comes of age. *Environmental Microbiology Reports.* 9: 33-35.

2016

47. #Taylor, B.P., Penington, C., and **Weitz, J.S.** (2016) Emergence of increased frequency and severity of multiple infections by viruses due to spatial clustering of hosts. *Physical Biology.*
48. **Weitz, J.S.**, #Eksin, C., #Paarporn, K., Brown, S.P., and Ratcliff, W.C. (2016) An oscillatory tragedy of the commons in replicator dynamics with game-environment feedback. *Proceedings of the National Academy of Sciences USA.* doi:10.1073/pnas.1604096113
49. Gregory, A.C., Solonenko, S.A., Ignacio-Espinoza, J.C., LaButti, K., Copeland, A., Sudek, S., Maitland, A., Chittick, L., dos Santos, F., **Weitz, J.S.**, Worden, A.Z., Woyke, T., and Sullivan, M.B. (2016) Genomic differentiation among wild cyanophages despite widespread horizontal gene transfer. *BMC Genomics* 17:930.

50. #Jover, L.F., Romberg, J. and **Weitz, J.S.** (2016) Inferring phage-bacteria infection networks from time-series data. *Roy. Soc. Open Sci.* 3: 160654.
51. #Gulbudak, H and **Weitz, J.S.** (2016) A touch of sleep: biophysical model of contact-mediated dormancy of archaea by viruses. doi: 10.1098/rspb.2016.1037
52. #Taylor, B.P., Dushoff, J. and **Weitz, J.S.** (2016) Stochasticity and the limits to confidence when estimating R0 of Ebola and other emerging infectious diseases. *J. Theor. Biol.* 408: 145-154.
53. #Leung, C.Y. and **Weitz, J.S.** (2016) Conflicting attachment and the growth of bipartite networks. *Physical Review E.* 93: 032303.
54. Charles H Wigington, Derek L Sonderegger, Corina PD Brussaard, Alison Buchan, Jan F Finke, Jed Fuhrman, Jay T Lennon, Mathias Middelboe, Curtis A Suttle, Charles Stock, William H Wilson, K Eric Wommack, Steven W Wilhelm, **Weitz, J.S.** (2016) Re-examination of the relationship between marine virus and microbial cell abundances. *Nature Microbiology* 1:15024.
55. #Flores, C.O, Poisot, T., Valverde, S and **Weitz, J.S.** (2016) BiMat: a MATLAB package to facilitate the analysis of bipartite networks. *Methods in Ecology and Evolution.* 7:127-132.

2015

56. #Das A, Schneider H, Burrige J, Ascanio AKM, Wojciechowski T, Topp CN, Lynch JP, **Weitz JS**, #Bucksch A. (2015). Digital Imaging of Root Traits (DIRT): a high-throughput computing and collaboration platform for field-based plant phenomics. *Plant Methods.* 11:51.
57. #Jover, L.F., #Flores, C.O., #Cortez, M.H. and **Weitz, J.S.** (2015) Multiple regimes of robust patterns between network structure and biodiversity. *Scientific Reports.* 5:17856.
58. **Weitz, J.S.** Stock CA, Wilhelm SW, Bourouiba L, Coleman ML, Buchan A, Follows MJ, Fuhrman JA, #Jover LF, Lennon JT, Middelboe M, Sonderegger DL, Suttle CA, #Taylor BP, Frede Thingstad T, Wilson WH, Eric Wommack K. (2015). Multitrophic model of virus effects on marine surface microbial communities. *ISME J.* 9:1352-1364.
59. **Weitz, J.S.** & Dushoff, J. (2015) Modeling post-death transmission of Ebola virus disease: challenges for inference and opportunities for control. *Scientific Reports* 5: 8751.

2014

60. #Bucksch A, Burrige J, York LM, Das A, Noord E, **Weitz JS**, and Lynch JP. (2014). Image-based high-throughput field phenotyping of crop roots. *Plant Physiology.* 166:470-486.
61. #Childs LM, England W, **Weitz JS**, Whitaker, RW. (2014) CRISPR-induced distributed immunity in microbial populations. *PLoS One.* 9:e101710
62. Deng, L, Ignacio-Espinazo, J., Poulous B. **Weitz JS**, Hugenholtz P and Sullivan MB. (2014) Viral tagging reveals discrete populations in *Synechococcus* viral genome sequence space. *Nature.* 513: 242-245.
63. #Jover, L, Effler, TC, Buchan A, Wilhelm SW, and **Weitz JS.** (2014) An elemental view of virus particles: implications for marine biogeochemical cycles. *Nat Rev Microbiol.* 12: 519-528.
64. #Das A, #Bucksch A, #Price CA and **Weitz JS.** (2014) ClearedLeavesDB: an online database of cleared plant leaf images. *Plant Methods.* 10:8
65. #Taylor, B.P. #Cortez, MH and **Weitz, JS.** (2014) The virus of my virus is my friend: ecological effects of virophage with alternative modes of coinfection. *Journal of Theoretical Biology.* 354: 124-136.
66. #Cortez, MH and **Weitz, JS.** (2014) Coevolution can reverse predator-prey cycles, *Proceedings of the National Academy of Sciences USA.* 111: 7486-7491
67. #Price, CA, and **Weitz, J.S.** (2014) Costs and benefits of reticulate leaf venation. *BMC Plant Biology.* 14: 234
68. **Weitz JS.** (2014) Let my people go (home) to Spain: a genealogical model of Jewish identities since 1492. *PLoS One.* 9:e85673
69. #Bucksch A, Turk G and **Weitz, J.S.** (2014) The Fiber Walk: A Model of Tip-Driven Growth with Lateral Expansion. *PLoS One, 9: e85585.*

70. #Price CA, Munro, P and **Weitz JS**, (2014) Estimates of leaf vein density are scale dependent. *Plant Physiology* . 164:173-180
71. #Lee, T., Parikh, R., **Weitz, J.S.**, Kim, H. (2014) Quantifying the interaction between adjacent genes within heterologous modules in yeast. *G3*. 4: 109-116.

2013

72. #Joh, R.I, Barzilay, E., Mintz, E., Weiss, H. and **Weitz, J.S.** (2013) Dynamics of shigellosis epidemics: estimating individual-level transmission and reporting rate from national epidemiological datasets. *Am J. Epidemiol* 178: 1319-1326.
73. #Taylor, B, #Lee, T. and **Weitz, JS**. (2013) Multi-scale sensitivity analyses of models of complex gene regulatory networks. *Methods*. 62: 109-120.
74. Topp CN, Iyer-Pascuzzi AS, Anderson JT, Lee C-R, Zurek PR, Symonova O, Zheng Y, Bucksch A, Mileyko Y, Galkovskiy T, Moore BT, Harer J, Edelsbrunner H, Mitchell-Olds T, **Weitz JS**, Benfey PN. (2013) 3D phenotyping and quantitative trait locus mapping identify core regions of the rice genome controlling root architecture. *Proc. Natl. Acad. Sci. USA*. 110: E1695-E1704.
75. #Jover, L., #Cortez, MH, and **Weitz, JS**. (2013) Mechanisms of multi-strain coexistence in host-phage systems with nested infection networks. *J. Theor. Biol.* 332: 65-77
76. Haegeman, B, Hamelin, J., Moriarty, J., Neal, P., Dushoff, J. and **Weitz, J.S.** (2013) Robust estimation of microbial diversity in theory and in practice. *ISME Journal*. 7: 1092-11101.
77. #Mitchell, G.J., Nelson, D.C., Wiesenfeld, K. and **Weitz, J.S.** (2013) Critical cell wall hole size for enzymatic lysis in Gram-positive bacteria. *J. Roy. Soc. Interface*. 10: 20120892.
78. #Flores, CA, Valverde, S and **Weitz, JS** (2013), Multi-scale structure and geographic drivers of cross-infection within marine bacteria and phages. *ISME Journal*. 7: 520-532.
79. #Cortez, M.H. and **Weitz, J.S.** (2013) Distinguishing between indirect and direct modes of transmission using epidemiological time series. *American Naturalist*. 181: E43-E54.
80. Held, NL, #Childs, LM, Davison, M, **Weitz, JS**, Whitaker, RJ & Bhaya, D. (2013) CRISPR-Cas systems to probe ecological diversity and host-viral interactions. CRISPR-Cas systems, editors: Barrangou and van der Oost, Springer.
81. Fang, S., Clark, R.T., Zheng, Y., Iyer-Pascuzzi, A.S., **Weitz, J.S.**, Kochian, L.V., Edelsbrunner, H., Liao, H., and Benfey, P.N.. (2013) Evidence for genotype-dependent recognition by rice roots. *Proc. Natl. Acad. Sci. USA*. 110: 2670-2675.
82. **Weitz, J.S.**, Poisot, T., Meyer, J.R., #Flores, C.O., Valverde, S., Sullivan, M.B., and Hochberg, M.E. (2013) Phage-bacteria infection networks. *Trends in Microbiology*. 21: 82-91.
83. Held, NL, #Childs, LM, Davison, M, **Weitz, JS**, Whitaker, RJ & Bhaya, D. (2013) CRISPR-Cas systems to probe ecological diversity and host-viral interactions. CRISPR-Cas systems, editors: Barrangou and van der Oost, Springer. 221-250.

2012

84. Price, C.A, **Weitz, J.S**, Savage, V., Stegen, J., Clarke, A., Coomes, D., Dodds, P.S., Etienne, R., Kerkhoff, A., McCulloh, K., Niklas, K., Olf, H., Swenson, N. (2012) Testing the metabolic theory of ecology. *Ecology Letters*. 15: 1465-1474.
85. #Price, C.A. and **Weitz, J.S.** (2012) Mini-review: Allometric covariation: a hallmark behavior of plants and leaves. *New Phytologist*. 192: 882-889.
86. **Weitz, J.S.** and Wilhelm, S.W. (2012) Ocean Viruses and Their Dynamical Effects on Microbial Communities and Biogeochemical Cycles. *F1000 Biology Reports*. 4:17
87. Jiang, X., Langille, M.G.I., Neches, R.Y., Elliot, M. Levin, S.A., Eisen, J.A., **Weitz, J.S.** and Dushoff, J. (2012). Functional biogeography of ocean microbes: dimension reduction of metagenomic data identifies biological patterns across scales. *PLoS One*. 7: e43866
88. #Mileyko, Y, Edelsbrunner, H, #Price, C.A., and **Weitz, J.S.** (2012) Hierarchical ordering of reticular networks. *PLoS One*. 7: e36715.

89. #Galkovskiy, T, #Mileyko, Y., Bucksch, A., Moore, B., #Symonova, O., #Price, C.A., Topp, C.N., Iyer-Pascuzzi, A.S., Zurek, P.R., Fang, S., Harer, J., Benfey, P.N. and **Weitz, J.S.** (2012) GiA Roots: software for the high-throughput analysis of plant root system architecture. *BMC Plant Biology*. 12:116.
90. Haegeman, B and **Weitz, J.S.** (2012) Neutral theory of genome evolution and the frequency distribution of genes. *BMC Genomics*. 13: 196.
91. #Childs, LM, Held, NL, Young, MJ, Whitaker, RJ and **Weitz, J.S.** (2012) Multi-scale Model of CRISPR-induced Coevolutionary Dynamics: Diversification at the Interface of Lamarck and Darwin. *Evolution*. 66: 2015-2029.
92. Meyer, J.R., Dobias, D.T., **Weitz, J.S.**, Barrick, J.E., Quick, R.T. and Lenski, R.E. (2012) Repeatability and contingency in the evolution of a key innovation in phage lambda. *Science* 335:428-432.
93. #Price, C.A., Wing, S. and **Weitz, J.S.** (2012) Scaling and structure of dicotyledenous leaf venation networks. *Ecology Letters* 15: 87-95.
94. Jeng, X., **Weitz, J.S.**, Dushoff, J. (2012). A non-negative matrix factorization framework for identifying modular patterns in metagenomic profile data. *Journal of Mathematical Biology*. 64: 697-711.

2011

95. #Flores, C., Meyer, J., #@Farr, L., Valverde, S. and **Weitz, J.S.** (2011). The statistical structure of host-phage interactions. *Proceedings of the National Academy of Sciences USA*. 108: E288-E297.
96. #Kislyuk, A, Haegeman, B., Bergman, N. and **Weitz, J.S.** (2011). Genomic fluidity: an integrative view of gene diversity within microbial populations. *BMC Genomics*. 12:32
97. #Joh, R.I. & **Weitz, J.S.** (2011). To lyse or not to lyse: transient-mediated stochastic fate determination in cells infected by bacteriophages. *PLoS Computational Biology*. 7: e1002006.
98. Menge, D.M., Ballantyne, F.B., and **Weitz, J.S.** (2011). Dynamics of nutrient uptake strategies: Lessons from the tortoise and the hare. *Theoretical Ecology*. 4: 163-177.
99. #Price, C.A. #Symonova, O., #Mileyko, Y., Hilley, T. and **Weitz, J.S.** (2011). LEAF GUI: segmenting and analyzing the structure of leaf veins and areoles. *Plant Physiology*. 155: 236-244.
100. Serra, M., Smith, H.A., **Weitz, J.S.** and Snell, T.W. (2011). Analyzing threshold effects in the sexual dynamics of cyclically parthenogenetic rotifer populations. *Hydrobiologia*. 662: 121-130.

2010

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102. #Price, C.A., Gillooly, J., Allen, A., **Weitz, J.S.** and Niklas, K (2010). The metabolic theory of ecology: prospects and challenges for plant biology. *New Phytologist*. 188: 696-710.
103. #Mitchell, G.J., Nelson, D.C. and **Weitz, J.S.** (2010). Quantifying lytic enzymes: estimating the combined effects of chemistry, physiology and physics. *Physical Biology*. 7: 046002.
104. Gudelj, I.^e, **Weitz, J.S.**^e, Meyer, J., Ferenci, T., Horner-Devine, M.C., Marx, C., Ackerman, M., and Forde, S.E.. (2010). An integrative approach to understanding microbial diversity: from intracellular mechanisms to community structure. *Ecology Letters*. 13:1073-1084.
105. #Mileyko, Y. and **Weitz, J.S.** (2010). Bifurcation analysis of gene regulatory network motifs subject to copy number variation. *SIAM J. on Applied Dynamical Systems*. 9: 799-826.
106. Iyer-Pascuzzi, A.^{e1}, #Symonova, O.^{e1}, #Mileyko, Y., Hao, Y., Belcher, H., Harer, J., **Weitz, J.S.**^{e2}, Benfey, P.N.^{e2} (2010). Imaging and analysis platform for automatic phenotyping and trait ranking of plant root systems. *Plant Physiology*. 152:1148-1157.
107. Ballantyne, F, Menge D, and **Weitz, J.S.** (2010). A discrepancy between Michaelis-Menten based nutrient uptake model predictions and nitrogen to phosphorus stoichiometry in the surface ocean. *Limnology and Oceanography*. 55: 997-1008.

108. #Boettiger, C., Dushoff, J. and **Weitz, J.S.** (2010). Fluctuation domains in adaptive evolution. *Theoretical Population Biology*. 77: 6-13.

2009

109. #Kislyuk, A. #Bhatnagar, S., Dushoff, J. and **Weitz, J.S.** (2009). Unsupervised statistical clustering of environmental shotgun sequences. *BMC Bioinformatics*. 10: 316.
110. #Wang, H., Jiang, L. and **Weitz, J.S.** (2009). Bacterivorous grazers facilitate organic matter decomposition: a quantitative modeling approach. *FEMS Microbiology Ecology*. 69: 170-179.
111. #Price, C.A., Ogle, K., White, E.P. and **Weitz, J.S.** (2009). Evaluating scaling theories in biology. *Ecology Letters*. 12: 641-651.
112. #Joh, R.I., #Wang, H., Weiss, H. and **Weitz, J.S.** (2009). Dynamics of indirectly transmitted infectious diseases with immunological threshold. *Bulletin of Mathematical Biology*. 71: 845-862.
113. Menge, D. and **Weitz, J.S.** (2009). Dangerous nutrients: Evolution of phytoplankton resource uptake subject to virus attack. *Journal of Theoretical Biology*. 257: 104-115.

2008

114. #Mileyko, Y., #Joh, R.I. and **Weitz, J.S.** (2008). Small-scale copy number variation and large-scale changes in gene expression. *Proceedings of the National Academy of Sciences USA*. 105: 16659-16664.
115. **Weitz, J.S.**, #Mileyko, Y., #Joh, R.I., and Voit, E.O. (2008). Collective decision making in bacterial viruses. *Biophysical Journal*. 95: 2673-2680.
116. **Weitz, J.S.** and Dushoff, J. (2008). Alternative stable states in host-phage dynamics. *Theoretical Ecology*, 1: 13-19.

2007

117. Muneekeparakul, R., **Weitz, J.S.**, Rinaldo, A., Levin, S.A. and Rodriguez-Iturbe, I (2007). A neutral metapopulation model of riparian biodiversity. *J. Theor. Biol.*, 245: 351-363.
118. Baskett, M., and **Weitz, J.S.**, and Levin, S.A. (2007). The evolution of dispersal in reserve networks. *Amer. Nat.* 170: 59-78.
119. **Weitz, J.S.**, Benfey, P.N. and Wingreen, N. (2007). Evolution, interactions, and biological networks. *PLoS Biology* 5:e11.

Pre-2007 (prior to starting a group at the Georgia Institute of Technology)

120. **Weitz, J.S.**, Ogle, K. and Horn, H.S. (2006). Ontogenetically stable hydraulic design in woody plants. *Functional Ecology* 20: 191-199.
121. **Weitz, J.S.** and Levin, S.A. (2006). Size and scaling in predator-prey dynamics. *Ecol. Lett.* 9: 548-557.
122. **Weitz, J.S.** and Hartman, H. (2006) Phage in the time of cholera. *Lanc. Infect. Dis.* 6: 257-258.
123. Memmott, J., Alonso, D., Berlow, E., Dobson, A., Dunne, J., Sole, R. and **Weitz, J.S.** (2006). Biodiversity loss and ecological network structure. Food Webs As Complex Adaptive Networks Linking Structure to Dynamics, eds. M. Pascual and J. A. Dunne. Oxford University Press.
124. **Weitz, J.S.**, Hartman, H. and Levin, S.A. (2005). Coevolutionary arms races between bacteria and bacteriophage. *Proceedings of the National Academy of Sciences USA*, 102: 9535-40.
125. M. Pie and **J.S. Weitz** (2005) Null model of morphospace occupation. *Am. Nat.* 166: E1.
126. **Weitz, J.S.** and Rothman, D.H. (2004). Dynamics of a contact process with ontogeny. *Physical Review E*, 70:021915.
127. **Weitz, J.S.** and Rothman, D.H. (2003). Scale-dependence of resource-biodiversity relationships. *J. Theor. Bio.* 225: 225-234.

128. Dodds, P.S. and **Weitz, J.S.** (2003). Packing limited growth of irregular objects. *Physical Review E*, 67:016117.
129. Dodds, P.S. and **Weitz, J.S.** (2002). Packing limited growth. *Physical Review E* 65: 056108.
130. Dodds, P.S., Rothman, D.H. and **Weitz, J.S.** (2001). Re-examination of the “3/4”-law of metabolism. *J. Theor. Biol.* 209: 9-27.
131. **Weitz, J.S.** and Fraser, H.B. (2001). Explaining mortality rate plateaus. *Proc. Natl. Acad. Sci. USA* 98: 15383-15386.
132. Cohen, R.E. and **Weitz, J.S.** (1998). The melting curve and premelting of MgO. High Pressure Temperature Research: Properties of Earth and Planetary Materials, eds. M.H. Manghnani and Y. Syono. American Geophysical Union: Geophysical Monograph Series.
133. Hinrichsen, H., **Weitz, J.S.** and Domany, E. (1997). An algorithm-independent definition of damage spreading - application to directed percolation. *Journal of Statistical Physics*, 88:617–636.
134. Fu, T. and **Weitz, J.S.** (1994). A high spatial resolution particle displacement velocimetry algorithm. Laser Anemometry: 1994 Advances and Applications, ed. T. Huang. ASME.

B3. Conference Publications (Refereed)

- 1*. #Paarporn, K., #Eksin, C., **Weitz, J.S.**, and Shamma, J. (2017) The effect of awareness on networked SIS epidemics. 55th IEEE Conference on Decision and Control.
- 2*. #Paarporn K, #Eksin C, Shamma J, and **Weitz JS**. (2015). Epidemic Spread Over Networks with Agent Awareness and Social Distancing. 53rd Annual Allerton Conference on Communication, Control, and Computing.

C1. Other Scientific Publications

1. Weitz JS (2003) Generalized Contact Processes in Ecology. Ph.D. dissertation, MIT

C2. Essays and Opinions

1. **Weitz, J.S.** and Gibson, G. (2020) Viral testing mitigates COVID’s spread. *Atlanta Journal Constitution*. 10/16/2020
2. **Weitz, J.S.** (2020) Georgia’s Colleges and Universities Are Not Ready to Open for Face-to-Face Instruction. *Atlanta Journal Constitution*. 8/3/2020
3. **Weitz, J.S.**, Harris, M., Chande, A., Gussler, W., Rishishwar, L., and Jordan, I.K. (2020) The Mathematics Behind COVID-19 Event Risk Assessment for State-Level ‘Re-Openings’ *Scientific American*. 5/2020
4. Beckett, S.J and **Weitz, J.S.** (2020) Georgia’s Reopening Depended on Missing Data. *Slate* 5/15/2020
5. **Weitz, JS** (2020) Brian Kemp’s plan to reopen economy could raise COVID-19 risks, *Atlanta Journal Constitution Get Schooled Blog*, 4/21/2020
6. **Weitz, JS** , Lenski, R., Meyers, L.A., Dushoff, J. (2020) Scientists do the math to show large events like March Madness could spread coronavirus. COVID-19 risks, *Atlanta Journal Constitution Get Schooled Blog*, 3/13/220
7. **Weitz, J.S.** (2019) Roll back ‘temporary’ student fees. Atlanta Journal Constitution “Get Schooled Blog”, 3/31/2019
8. **Weitz, J.S.** and Goytia, M. (2018) Trump border policy as child abuse, and a path to justice. Atlanta Journal Constitution, 6/22/2018
9. **Weitz, J.S.**, (2018) Institutional Courage in the Wake of Parkland: The Role of Colleges and Universities. Atlanta Journal Constitution, “Get Schooled Blog”, 3/8/2018
10. **Weitz, J.S.**, (2017) An Invitation to Repeal “Campus Carry”. The Technique, Georgia Tech Student Newspaper, 8/25//2017
11. **Weitz, J.S.**, (2017) Should Scientists Compromise? It Depends on the Terms. The Chronicle of Higher Education, 3/10/17
12. **Weitz, J.S.**, (2017) Strangers in a strange land. The Technique, Georgia Tech Student Newspaper, 1/31/2017

D. Presentations

*Note: only those presentations delivered by JS Weitz are listed; * denotes plenary speaker*

Invited presentations at universities and conferences

2021

French Phage Network, Roscoff, France (10/2021)
*Institute of Physics, Physics and Biology 2021, Oxford, UK (7/2021)
Aquatic Virus Workshop 10, Kyoto, Japan (6/2021)
Ohio State University, Biophysics (4/2021)
Northwestern University, Chemical and Biological Engineering (4/2021)
Tara Oceans Quantitative Life Conference (3/2021)
Montana State University, Microbiology (3/2021)
Rice University, Center for Theoretical Biophysics (3/2021)
Emory University, Theory and Modeling of Living Systems Virtual Workshop on Covid-19 (1/2021)

2020

Georgia Tech College of Science Townhalls on Coronavirus (regular series, 8/20; 9/20x2; 11/20)
ICTP, Trieste, Italy, Winter School on Quantitative Systems Biology: Quantitative Approaches in Ecosystem Ecology (11/2020 – 12/2020; 3 lectures)
Scripps Institute of Oceanography, Ecology (10/2020)
Montana State University, Disease Ecology (10/2020)
UNAM (Mexico), Institute of Physics (10/2020)
University of Montpellier, Ecology and Evolution (10/2020)
Princeton University, Ecology and Evolutionary Biology Seminar (10/2020)
ACM-Bioinformatics and Computational Biology Conference, Covid-19 Symposium (9/2020)
Emory School of Public Health, Bioinformatics and Biostatistics (9/2020)
UGA, Department of Microbiology (9/2020)
Stockholm Institute of Economics, Coronavirus Form (9/2020)
Kavli Institute of Theoretical Physics, Bacteriophage Forum (8/2020)
Covid-19 Dynamics and Evolution, Virtual Conference (7/2020)
University of Texas-Austin, Covid-19 Visiting Speaker, Meyers Laboratory (6/2020)
MPI for Evolutionary Biology (6/2020)
Vermont Complex Systems Center, University of Vermont (6/2020)
School of Biological Sciences Advisory Board, Georgia Institute of Technology (4/2020)
Nonlinear Sciences Seminar on COVID-19, Georgia Institute of Technology (4/2020)
Center for Microbial Dynamics and Infection - Coronavirus Forum, Georgia Institute of Technology (2/2020)

2019

Simons Collaboration on Ocean Processes and Ecology, Simons Foundation (12/2019)
*Combating Therapeutic Resistance Symposium, Peabody Museum, Yale University, (11/2019)
NASA Astrobiology Institute, Astrovirology Workshop Without Walls (virtual workshop) (9/2019)
Gordon Research Conference on Marine Molecular Ecology, Hong Kong Institute for Science and Technology, Hong Kong (7/2019)
International Physics of Living Systems Conference, Max Planck Institute for Biochemistry, Munich, Germany (7/2019)

Ecole Normale Supérieure, Theoretical Physics, Paris, France (7/2019)
Institute for Infectious Disease Research, Ohio State University (4/2019)
AAAS Annual Meeting, Washington DC (2/2019)
*ICTP Summer School on Mathematical Models of Evolution, Sao Paulo, Brazil (1/2019) Multiple lectures (a series of 4 in total)

2018

Simons Collaboration on Ocean Processes and Ecology, Simons Foundation (12/2018)
Santa Fe Institute, Santa Fe, NM (11/2018)
International Society of Microbial Ecology 17, Leipzig, Germany (8/2018)
ASLO Summer Meeting 2018, Vancouver, BC (6/2018)
Jockey Club Institute for Advanced Study, Hong Kong University of Science and Technology (4/2018)
Institute for Data, Engineering, and Science, Georgia Institute of Technology (3/2018)
School of Informatics, Computing, and Cyber Systems, Northern Arizona University (3/2018)
One Health Symposium, U of Florida, Emerging Pathogens Institute (1/2018)

2017

Simons Collaboration on Ocean Processes and Ecology, Simons Foundation (12/2017)
University of Tennessee-Knoxville, Department of Microbiology (10/2017)
Georgia Institute of Technology, Antimicrobial Resistance Symposium, School of Biological Sciences (8/2017)
*KITP Eco-evolutionary dynamics of microbial communities, Santa Barbara (7/2017). Multiple lectures
Federation of European Microbiological Societies 2017 (7/2017)
University of Buenos Aires, Department of Biology (6/2017)
American Society of Virology Annual Meeting, Madison, WI (6/2017)
Centennial Bacteriophage Conference, Human Phage Therapy Day, Institut Pasteur, Paris, France (4/2017)
JGI Meeting on Microbial Diversity (4/2017)
NIH, Lambda Lunch (4/2017)
NYU, Department of Biology (3/2017)
Emory University, Center for Cystic Fibrosis and Airways Disease Research (CF-AIR) (3/2017)
UCSD, Department of Ecology and Evolutionary Biology (2/2017)

2016

Simons Collaboration on Ocean Processes and Ecology, Simons Foundation (12/2016)
*Aquatic Virus Workshop 8, Plymouth, United Kingdom (7/2016)
London School of Hygiene and Tropical Medicine (7/2016)
Quantitative Laws II, Como, Italy (6/13/06 & 6/14/06)
Georgia Southern University, School of Public Health (3/2016)
U of Vermont, Complex Systems Institute (3/2016)

2015

Georgia Institute of Technology Bioinformatics conference, Atlanta, GA, (11/2015)
U of Michigan, Ecology and Evolutionary Biology (10/29/15)
National Center for Biotechnology, Madrid, Spain (10/23/15)
U of Nebraska Lincoln, Biotechnology and Life Sciences Seminar, (10/14/2015)
*Workshop: Living Systems from Interaction Patterns to Critical Behavior, Venice, Italy (9/16/15 & 9/17/15)
Emory University, Population Biology, Ecology and Evolution (9/4/15)
Evergreen Phage Meeting, Olympia, WA (8/6/2015)
Marine Biological Laboratory, Microbial Diversity Course (8/4/15) - Two Lectures

University of Buenos Aires, Instituto de Calculo, Buenos Aires, Argentina (6/24/2015)
Weizmann Institute of Science, Department of Physics (6/3/2015)
Technion – Israel Institute of Technology, Department of Biology (6/1/2015)
NIH, Fogarty International Center, RAPIDD Workshop on Ebola Forecasting Approaches (3/23/2015)
MIT, Earth, Atmospheric and Planetary Sciences & Microbial Systems Joint Seminar (3/18/2015)
MIT, Biophysics (3/17/2015)
Howard University, Department of Mathematics (3/12/2015)

2014

School of Biology, Georgia Institute of Technology (11/25/2014)
Soft Matter and Biophysics, School of Physics, Georgia Institute of Technology (11/4/2014)
*Isaac Newton Institute for Mathematical Sciences, Program on Modeling Microbial Communities

- PhD Summer course 10/27/2014)
- Workshop (10/31/2014)

Burroughs Wellcome Fund, BWF-CASI Awardees Meeting (10/2014)
School of Biology Retreat, Georgia Institute of Technology (9/7/2014 – keynote speaker)
*Marine Biological Laboratory, Microbial Diversity Course (8/1/2014-8/2/2014)

- Two Lectures in Microbial Diversity Summer Course (8/1/2014)
- Symposium Speaker, Systems Microbiology (8/2/2014)

Gordon Research Conference, Marine Microbes (6/2014)
J. Craig Venter Institute, San Diego, CA (3/2014)
Burroughs Wellcome Fund Board of Director's Meeting, Santa Barbara, CA (2/2014)
Dynamics Days, Georgia Institute of Technology (1/4/2014)

2013

Department of Ecology & Evolutionary Biology, University of Arizona, Tucson, AZ (12/2/2013)
Arizona State University

- School of Mathematics and Statistics, Tempe, AZ (11/12/2013)
- School of Life Sciences Tempe, AZ (11/13/2013)

Aquatic Viral Workshop 7, St. Petersburg, FL (11/4/2013)
*Quantitative Laws of Genome Evolution, Lake Como, Italy (6/28/2013-6/30/2013)

- Introduction to evolutionary ecology for quantitative biologists – Part 1
- Introduction to evolutionary ecology for quantitative biologists – Part 2
- Simple (but different): evolutionary dynamics of gene composition within bacterial genomes

Centre for Biodiversity Theory and Modelling, CNRS, Moulis, France (5/2013)
Institute for Evolutionary Biology, Universitat Pompeu Fabra, Barcelona, Spain (5/2013)
Frontiers in Systems and Synthetic Biology '13, Georgia Tech (3/22/2013)
University of Maryland, Department of Biology (3/4/2013)
Institute for Bioengineering and Biosciences, Georgia Tech (2/12/2013)
Biosphere 2, Environmental Virology Workshop, U of Arizona (1/7/2013)

2012

U of Tennessee-Knoxville, Ecology & Evolutionary Biology (11/9/2012)
Centers for Models of Life, Niels Bohr Institute, DNA Dynamics and Life Strategies Conference, Denmark (8/17/2012)

2011

Human Health and the Microbiome Symposium, Emory University (12/2011)
U of Florida, Department of Biology (11/15/2011)
U of Texas-Austin, Section of Integrative Biology (10/19/2011)

CRISPR 2011, Berkeley, CA. (7/12/2011)
University of Montpellier-II, Montpellier, France. (5/16/2011)
Centers for Models of Life, Niels Bohr Institute, Copenhagen, Denmark (5/11/2011)
Kavli Institute for Theoretical Physics, UCSB. (3/1/2011)
McMaster University, Department of Biology, Hamilton ON (3/25/2011) *Graduate student selected speaker

2010

CRISPR 2010, Berkeley, CA. (7/23/2010)
INRIA, Seminaire du Projet de Recherche, Montpellier, France. (5/25/2010)
University of Georgia, Dept. of Microbiology (4/8/2010).
*Southeastern Ecology and Evolution Conference, Atlanta, GA. (3/26/2010)
Harvard University, Dept of Organismal and Evolutionary Biology (3/25/2010)
DARPA Fundamental Laws of Biology Workshop, Irvine, CA. (1/20/2010)

2009

Microbes to Metazoans: Regulation, Dynamics, and Evolution of Social Behavior Workshop, Georgia Tech. (12/3/2009).
EPSO Plant Phenotyping Workshop, Julich Germany (11/2/2009)
Duke University, Institute for Systems Biology (10/1/2009)
Ecological Society of America 94th Annual Meeting, Albuquerque, NM. (8/6/2009)
UCLA, Dept. of Biomathematics, (5/21/2009)
University of Pennsylvania, Dept. of Biology, (4/30/2009)

2008

University of Alabama-Birmingham, Dept. of Microbiology. (12/9/2008)
Reed College, Dept. of Physics. (11/19/2008)
University of Oregon, Center for Ecology and Evolution (11/17/2008)
Rutgers University, BioMAPS (11/11/2008)
Genetic and Evolutionary Computation Conference, Atlanta, GA (7/14/2008)
NIH, Lambda Lunch Seminar (5/22/2008)
University of Maryland Biotechnology Institute (4/18/2008)
University of Georgia, Dept. of Ecology (3/18/2008)
University of Illinois Urbana Champagne, Dept. of Physics (3/4/2008)
Emory University, Program in Population, Ecology and Evolutionary Biology (2/15/2008)
Tata Institute for Fundamental Research, School of Theoretical Physics, Mumbai, India (1/3/2008)

2007

*National Center for Biological Research, Bangalore, India. Institute Lecture (12/21/2007)
*National Center for Biological Research, Bangalore, India. Institute Lecture (12/20/2007)
DARPA Fundamental Laws of Biology Annual Meeting, San Diego, CA. (12/12/2007)
University of Buenos Aires, Dept. of Physics, Buenos Aires, Argentina. (7/5/2007)
University of British Columbia, Vancouver, Canada, Department of Mathematics. (4/26/2007)
Georgia Institute of Technology, School of Mathematics. (4/18/2007)
Georgia Institute of Technology. Center for Biologically Inspired Design. (3/26/2007)
Ecole Normale Supérieure, Paris, France. (2/2/2007)

Pre-2007

Necker Hospital, Paris, France. (11/15/2006)
Ecological Society of America 91st Annual Meeting, Memphis, TN. (8/10/2006)
American Society for Microbiology 106th General Meeting, Orlando, FL (5/22/2006)

DARPA Fundamental Laws of Biology Annual Meeting, Santa Barbara, CA. (5/12/2006)
 Mathematical Biology Institute, Ohio State University. (4/27/2006)
 DARPA Fitness Landscape Workshop, University of California–Berkeley (2/4/2006)
 Department of Mathematics, San Diego State University (1/31/2006)
 School of Biology, Georgia Institute of Technology (1/24/2006)
 Dept. of Mathematics, UC-Berkeley (11/21/2005)
 Dept. of Computer Science, Duke University (10/17/2005)
 4th International Canopy Conference, Leipzig, Germany (7/14/2005)
 Center for Studies in Physics and Biology, Rockefeller University (9/28/2004).
 Dept. of Civil and Environmental Engineering, MIT (3/11/2004).
 Center for Discrete Mathematics and Theoretical Computer Science, Rutgers University (10/1/2003).
 Harvard Forest, Harvard University (7/17/2002)

E. Grants and Contracts

E1. Currently Funded

Awarded

- 7/1/2020-6/30/2024 Simons Foundation: Simons Collaboration on Ocean Ecology Processes. *Viruses vs. zooplankton: quantifying the interplay between parasites and predators in the North Pacific Ocean.* (**Weitz, Investigator** \$1,280,773)
- 4/1/2020-8/31/2024 Simons Foundation: Eco-evolutionary Theories of Viral Fitness on a Continuum from Lysis to Latency (**Weitz, PI**, \$1,187,968)
- 6/1/2020-5/31/2021 NSF- 2032082 – National Science Foundation: *Collaborative Research: RAPID: Integrative Modeling of Intervention Serology and the Role of Shield Immunity in Reducing COVID-19 Epidemic Spread* (**Weitz, PI**, \$99,430, w/B. Lopman (Co-PI, Emory)
- 8/22/2019-7/31/2024 NIH- 1R01AI146592-01 – National Institutes of Health, NIAID: *Synergistic control of acute respiratory pathogens by bacteriophage and the innate immune response* (**Weitz, PI**, \$2,578,632, w/L. Debarbieux, PI (Institut Pasteur))
- 7/19/2019-7/18/2022 Army Research Office W911NF1910384 *Dynamics and Control of Complex Networked Communities: Scaling from Microbes to Metazoans* (**Weitz PI**, \$750,000; w/Sam Brown)
- 9/15/2018-9/14/2021 PHY-1806606 – National Science Foundation, Physics of Living Systems: *Collective Dynamics and Collaborative Killing: Synergistic Elimination of Bacteria by Immune Cells and Viruses* (**Weitz, PI**, \$537,617, w/J. Curtis).
- 10/1/2018-9/30/2021 OCE-1829636 – National Science Foundation, Biological Oceanography: *Collaborative Research: Inferring Cellular Lysis and Regeneration of Organic Matter by Marine Viruses* (**Weitz, PI**, \$336,989, w/S. Wilhelm (UT-K) and M. Sullivan (OSU), ~\$1.9M total funding).
- 3/1/2019-2/29/2020 Simons Foundation: *Virus-picoplankton dynamics in the Southern Pacific Ocean* (**Weitz, PI**, \$64,030, w/D. Demory (GT))
- 2/1/2020-1/31/2023 EP-1934554 – National Science Foundation, Collaborative Research: BEE: A dormancy refuge in host-parasite eco-evolutionary dynamics (**Weitz, Co-PI**, w/Jay Lennon PI Indiana U, \$268,577 GT portion; 0.5 months)
- 10/1/2018-9/30/2020 DMS-1839339 – National Science Foundation, Mathematical Sciences: TRIPODS+X:EDU: Collaborative Education: Data-driven Discovery and Alliance (**Weitz, Co-PI**, Tetali PI, \$99,976, w/Spelman College, Moorehouse College, and Agnes Scott College).

Pending

1/1/2021-12/31/2023 Charles Blaise Pascal International Chair of Excellence, Ile-de-Paris Region, École Normale Supérieure, 2020-2023 (**Weitz, PI**, 170,000 euros)

E2. Previously Funded

- 10/1/2014-6/30/2020 Simons Foundation: Simons Collaboration on Ocean Ecology Processes. *Viruses vs. zooplankton: quantifying the interplay between parasites and predators in the North Pacific Ocean.* (**Weitz, Investigator** \$1,433,318 to GT; D. Karl and E. Delong (U of Hawaii), PI-s)
- 7/15/2014-3/30/2019 Army Research Office (\$915,000; **Weitz PI**) “*Coevolutionary complex networks: dynamical foundations, influence, and control.*”
- 11/1/2015-12/31/2016 (NCE until 12/31/17) Mathworks Corporation, *Curriculum Development Award for Modules in Quantitative Biosciences* (**Weitz, PI**, \$30,000)
- 8/1/2012-7/31/2016 OCE-1233760 – National Science Foundation, Biological Oceanography: *Understanding the Effects of Complex Phage-Bacteria Infection Networks on Ocean Ecosystems* (**Weitz, PI**, \$471,076, NC).
- 6/1/2015-12/1/2015 iPlant Collaborative, *High-Throughput Compute Platform for Quantifying Root Traits from Image Data.* (**Weitz, PI**, \$39,998)
- 1/1/2007–12/31/2013 Burroughs Wellcome Fund: Career Award at the Scientific Interface: *Evolutionary Ecology of Bacterial Viruses.* (**Weitz, PI**, \$500,000, NCE until 6/30/2015).
- 2012-2014 National Institute for Mathematical and Biological Synthesis: *Ocean Viral Dynamics* (**Weitz, PI** w/S. Wilhelm, Co-PI; Workshop grant for all travel and hosting expenses for 15 participants at meetings in NIMBioS, Knoxville, TN: Spring 2012, Fall 2012, Summer 2013 and Spring 2014)
- 10/1/2008-9/30/2013 James S. McDonnell Foundation: *Mechanisms and Evolution of Complex Life History Traits in Bacterial Viruses* (**Weitz, PI**, \$448,261, NCE until 12/31/2014).
- 10/1/2013-9/30/2018 DEB-1342876 – National Science Foundation, Dimensions of Biodiversity, *Dimensions: Cost and benefits of chronic viral infections in natural ecosystems* (**Weitz, Co-PI** \$442,272 w/M. Young PI at Montana State University)
- 9/1/2012-8/31/2017 (current NCE) PHY-1205878 – National Science Foundation Physics of Living Systems: *Physics of Living Systems Student Research Network* (**Weitz, Co-PI**, w/5 others, w/D. Goldman, PI, \$1,188,363).
- 9/1/2008-8/31/2012 PGRP-0820624 – National Science Foundation: *GEPR-Genome-wide Analysis of Root Traits* (**Weitz, Co-PI**, \$302,815 to G.Tech w/ P. Benfey PI at Duke University)
- 9/11/2009-9/10/2011 Defense Advanced Research Projects Agency: *Predictive Biology: Adaptability, Robustness and the Fundamental Laws of Biology.* (**Weitz, Co-PI**, \$ 252,724 to G. Tech w/S. Levin PI, Princeton University).
- 1/1/2007–10/7/2010 Defense Advanced Research Projects Agency: *Microstates to Macrodynamics: A New Mathematics of Biology.* (**Weitz, Co-PI**, \$416,724 to G. Tech w/S. Levin PI, Princeton University).

E3. Workshop Grants

Current

3/1/2021-8/30/2021 Burroughs Wellcome Fund (pending award) QBioS Hands-On Modeling Workshop 2021 – Epidemics and Outbreaks: Supporting Peer-to-Peer Instruction and Public Engagement (**Weitz, PI**, \$45,410)

Awarded

3/1/2020-6/30/2021 Burroughs Wellcome Fund: Workshop grant for *QBioS Hands On Modeling Workshop* (**Weitz, PI**, \$4,000)

- 4/1/2019-3/30/2020 Burroughs Wellcome Fund: Workshop grant for *QBioS Hands On Modeling Workshop* (**Weitz, PI**, \$2,000)
- 1/1/2017-12/31/2018 Burroughs Wellcome Fund: Workshop grant for *QBioS Hands On Modeling Workshop* (**Weitz, PI**, \$2,000)
- 4/15/2016-12/31/2016 National Science Foundation: Workshop grant for *Quantitative Laws II*, Lake Como, Italy (**Weitz, PI**, \$15,000)
- 5/1/2016-12/31/2016 Burroughs Wellcome Fund: Workshop grant for *Quantitative Laws II*, Lake Como, Italy (**Weitz, PI**, \$3,500)
- 1/1/2015-12/31/2015 Burroughs Wellcome Fund: Workshop grant for *Dynamic Models of Ebola in W. Africa: Linking Predictions, Control Efforts and Policy* (**Weitz, PI**, \$12,000)
- 1/14/2008-4/30/2010 Burroughs Wellcome Fund: Workshop grant for *Viral Paradigms: Molecules, Populations, Ecosystems and Infectious Disease* (**Weitz, PI**, \$14,565).
- 1/1/2008 -12/31/2009 DEB-0808966 – National Science Foundation: Workshop grant for *Viral Paradigms: Molecules, Populations, Ecosystems and Infectious Disease* (**Weitz, PI**, \$12,600).

E.4 Georgia Tech Funded Grants

- 2020-2021 Vice-Provost Innovation in Graduate Education Fund, Georgia Institute of Technology (**Weitz, PI**, \$20,000)
- 2020-2021 Georgia Institute of Technology, Vice Provost ‘Small Bets’ Program *Mapping the Shape and Space of Human Rights* (C. Andris, PI, \$71,334, & **Weitz, Co-PI**).
- 2019-2020 Vice-Provost Innovation in Graduate Education Fund, Georgia Institute of Technology (**Weitz, PI**, \$20,000)
- 2018-2019 Georgia Institute of Technology Research Development Grant, College of Sciences, *Analyzing virus effects on the marine carbon cycle and food web at the Chatham Rise* (**Weitz, PI**, w/Dr. David Demory, \$10,000)
- 2017-2019 Georgia Institute of Technology Strategic President’s Advisory Group, *Interdisciplinary Graduate Program in Quantitative Biosciences* (**Weitz, PI** w/H. Lu, P. McGrath, H. Park, P. Qiu and S. Yi, \$86,000)
- 2017-2018 Georgia Institute of Technology GT-FIRE grant, *Translating QBioS Lectures and Laboratories into Short-course Workshops to Broaden Inclusion and Integration of Quantitative Modeling in the Life Sciences*, (**Weitz, PI** w/S. Yi, P. Qiu & L. Destefano, \$39,000)
- 2016-2017 Vice-Provost Innovation in Graduate Education Fund, Georgia Institute of Technology (**Weitz, PI**, \$55,000)
- 2014 College of Sciences Seed Grant, Georgia Institute of Technology, Workshop on *Dynamic Models of Ebola in W. Africa: Linking Predictions, Control Efforts and Policy* (**Weitz, PI**, \$5,000)
- 2013 College of Sciences Research Development Grant, Georgia Institute of Technology, *Towards 3D Estimation of in situ Phenotypic Traits for Maize and Bean Root Systems* (**Weitz, PI**, \$10,000)

F. Other Scholarly Accomplishments

The Weitz group has led the development of the following software and database packages:

1. BiMat – Analysis library for the structure of bipartite networks in ecology (Release: 2015)
<http://bimat.github.io>
2. GiA Roots – Semi-automated phenotyping of root system architecture derived from 2D images taken in transparent gels (Release: 2012)
<http://www.giaroots.org>

3. LEAF GUI – User-assisted extraction of leaf venation structure given 2D cleared leaf images (Release: 2011)

<http://www.leafgui.org>

4. DIRT – Digital Imaging of Root Traits extends GiA Roots by enabling semi-automated phenotyping of crop plant root traits grown in field conditions (Release: 2015 – still in beta development)

<http://dirt.iplantcollaborative.org>

5. CLID – Cleared Leaf Image Database provides access to thousands of cleared leaf images to the scientific community and general public (Release: 2014)

<http://clearedleavesdb.org>

Ongoing software releases are distributed via weitzgroup.github.io.

G. Societal and Policy Initiatives

COVID-19 Modeling Response, 2020-present

Multifaceted effort including risk assessment, transmission characteristics, forecasting and serological initiative, including reports, interface with state level agencies, public engagement, advising, and private-public partnerships for social good. Radio, blogs, essays, analytics, and the development of a dashboard that has seen >2M visitors since July 7, 2020 – <https://covid19risk.biosci.gatech.edu>. Advising Institute on Covid-19 responses and strategic asymptomatic testing initiative.

Mapping Rights, 2019-present

Initiated a ‘Mapping Rights’ project in collaboration with the National Center for Civil and Human Rights (headquartered in Atlanta, GA), jointly with Prof. Clio Maria Andris (Georgia Tech, Design and Computing). The aim of the project is to visualize and analyze a spectrum of rights data (civil, health, social, etc.) to deliver web-based interfaces for use by the NCCHR. Co-mentoring two students on a pro bono basis jointly w/Prof. Andris.

Tahirih Justice Center, 2018-2019

Ongoing collaboration with the Senior Counsel for Policy and Strategy at Tahirih (Jeanne Smoot, J.D.) to analyze historical Georgia marriage data in support of grassroots efforts to end child marriage in the state of Georgia and raise the legal age of marriage to 18 from the current age of 16. This effort includes work by a undergraduate neuroscience major (Ellen Cottingham), and a PhD student in Physics (Ashley Coenen), both mentored by Weitz. The project included time-sensitive delivery of analysis and visualizations of the change in trends in child marriages, county-by-county breakdown, and analysis of age disparities for inclusion in briefing documents. The marriage bill was signed into law on May 6, 2019. Our role in this effort is highlighted below:

- <https://www.tahirih.org/news/victory-in-georgia-new-law-protects-against-child-marriage/>

Science of Doing Good, 2018-2019

Co-organized (w/Prof. Paul Wolpe (Emory) and Dr. Jonathan Crane (Emory)) a ‘Scientists in Synagogues’ program on the theme of ‘The Science of Doing Good’, co-sponsored by AAAS’ Dialogue on Science, Ethics, and Religion and the ‘Sinai and Synapses’ program. The program at Congregation Shearith Israel included five community events, featuring local scientists from Georgia State and Emory as well as social good program executives in dialogue on the intersection of science, religion, and society:

- <https://orbitermag.com/biologys-golden-rule/>

Center for Access to Justice, 2016-2017

Weitz initiated a collaboration with the Georgia State University Center for Access to Justice (Director: Lauren Lucas, Associate Director: Darcy Meals) to develop an interactive visualization map of Georgia’s “legal deserts” to highlight disparities in county-level accessibility to legal representation and services. This map has been featured at the GSU Center website, Salon, amongst many outlets (2016-2017):

- <http://law.gsu.edu/center-access-justice/research/>
- <https://www.salon.com/2017/09/30/every-year-millions-try-to-navigate-us-courts-without-a-lawyer-partner/?ref=hpvr.com>
- https://weitzgroup.github.io/Access_To_Justice/

Ebola Virus Disease, 2014-2015

Weitz served as Chair and Lead Organizer of the Rapid Response workshop on “*Dynamic Models of Ebola in W. Africa: Linking Predictions, Control Efforts and Policy*” (January 2015, Georgia Tech), including participants from academia and government including BARDA and the White House Office of Science, Technology and Policy. Weitz organized the development of a workshop report to disseminate workshop discussions to the broad scientific and policy community, available here: http://bit.ly/ebm_gt_report.

V. Teaching

A. Courses Taught

(reverse chronological order, * denotes new curriculum, / denotes cross-listed, & denotes co-taught). All ratings are out 5 and respond to the question of overall effectiveness of the instructor.

| Year | Class # | Name of class | Students | Rating (/5.0) |
|---------------|---------------------------|--|----------|---------------|
| Fall 2020 | BIOL 6750/ PHYS 6750 | Foundations in Quantitative Bioscience | 10 | 4.8 |
| Fall 2019 | BIOL 8814 | Foundations in Quantitative Biosciences | 8 | 5.0 |
| Fall 2018 | BIOL 8804 | Foundations in Quantitative Biosciences | 13 | 4.8 |
| Fall 2017 | BIOL 8804 | Foundations in Quantitative Biosciences | 6 | 5.0 |
| * Fall 2016 | BIOL 8804 | Foundations in Quantitative Biosciences | 11 | 5.0 |
| & Spring 2016 | BIOL 2400 | Math Models in Biology | 32 | 4.2 |
| Spring 2015 | BIOL 4755/ <i>ibid</i> | Mathematical Biology Intro to Systems Biology | 1 8 | 5.0 4.8 |
| * Spring 2013 | BIOL 8803 | Seminar on Viral Ecology | 5 | 5.0 |
| Spring 2012 | BIOL 6422/ <i>ibid</i> | Theoretical Ecology Theoretical Ecology | 7 6 | 4.7 4.9 |
| & Spring 2012 | BIOL 2400 | Math Models in Biology | 47 | 4.5 |
| * Spring 2011 | BIOL 4755/ <i>ibid</i> | Mathematical Biology Intro to Systems Biology | 3 11 | 4.3 5.0 |
| Spring 2010 | BIOL 4422/ <i>ibid</i> | Theoretical Ecology Theoretical Ecology | 3 16 | 5.0 4.1 |
| * Spring 2009 | BIOL 4755/ <i>ibid</i> | Mathematical Biology Mathematical Biology | 14 6 | 4.3 4.5 |
| & Spring 2009 | BIOL 2400 | Math Models in Biology | 38 | 4.3 |
| Fall 2008 | BIOL 2400 | Math Models in Biology | 39 | 3.9 |
| * Spring 2008 | BIOL 6422 | Theoretical Ecology | 16 | 4.6 |
| * Spring 2008 | BIOL 4422 | Theoretical Ecology | 8 | 4.1 |
| &* Fall 2007 | BIOL 2400 | Math Models in Biology | 39 | 4.1 |

B. Individual Student Guidance

B1. PhD Students

18. Shashwat Shivam 2019- Electrical and Computer Engineering
17. Marian Dominguez-Mirazo 2019- Quantitative Biosciences
16. Andreea Magalie 2018-present Quantitative Biosciences
15. Rogelio Rodriguez 2018-present Quantitative Biosciences
14. Guanlin Li 2017-present Quantitative Biosciences
13. Daniel Muratore 2017-present Quantitative Biosciences
12. Ashley Coenen 2016-present Physics
11. Yu-Hui Lin 2016-2019 Physics
 - Now: Data Scientist, Verdigris
10. Shengyun Peng 2015-2018 Bioinformatics
 - Now: Data Scientist, Adobe Inc.
9. Keith Paarporn 2015-2018 Electrical and Computer Engineering
 - First author papers in J. Theor. Biology, Conference on Decisions and Controls (2x)
 - Postdoc in Electrical and Computer Engineering at UCSB
8. Charles Wigington 2013-2017 Bioinformatics
 - Now: Data scientist at Press Ganey (2017)
7. Bradford Taylor 2011-2016 Physics
 - Nerem International Travel Award to visit Max Plank Institute in Heidelberg, \$3000 (2015)
 - Advanced to candidacy, Summer 2013
 - Thesis defense, Summer 2016
 - Now: Postdoctoral scientist, Memorial Sloan Kettering Cancer Center (2017)
6. Luis Jover 2011-2016 Physics
 - Advanced to candidacy, Spring 2013
 - NIMBioS Visiting Graduate Student Fellowship (Spring 2014)
 - Thesis defense, Spring 2016
 - AT&T Data Sciences Intern (Summer 2015)
 - Now: Walmart Data Scientist (2016)
5. Abhiram Das 2011-2015 Bioinformatics
 - Article in Plant Methods selected as Editor's Pick and Most Viewed (July 2014)
 - Lead developer of "Powered by iPlant" project "Digital Imaging of Root Traits"
 - Now: DNAnexus, Bioinformatics Engineer (2015)
4. Cesar Flores 2010-2014 Physics
 - Thesis: "Phage-bacteria infection networks"
 - CONACyT Mexican National Fellowship (2012-2014)
 - Microsoft Research Cambridge intern (Spring 2014)
 - Now: Decision Sciences Analyst, Conversant Inc (Fall 2014)
3. Gabriel Mitchell 2008-2013 Biology
 - Thesis: "Quantifying enzymatic lysis in Gram-positive bacteria"
 - Postdoctoral fellow, IST Austria (2013)
 - Now: Clinical Data Scientist at the Seattle Cancer Care Alliance
2. Richard In-Ho Joh 2007-2011 Physics
 - Thesis: "Quantitative analysis of biological switches"
 - Postdoctoral fellow, MIT, Department of Chemical Engineering (2011-2013)
 - Postdoctoral fellow, Harvard Medical School (2013)
 - Now: Assistant Professor in Physics, Virginia Commonwealth University
1. Andrey Kislyuk 2008-2010 Bioinformatics
 - Thesis: "Algorithm development for next-generation sequencing"

- Winner, SAIC Student Paper Contest, 2011
- Bioinformatics Scientist, Pacific Biosciences of California (2010-2011)
- Bioinformatics Engineer, DNAnexus (2011)
- Now: Principal Engineer, Chan Zuckerberg Initiative

B2. M.S. students (along with first job upon graduation and current position if known)

- H. Al-Rasheed M.S. studies (concurrent w/PhD in Computer Science)
 - Initial/current: Assistant Professor, Saudi Arabia, King Saud University
- R. Jin M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2018)
 - Initial/current: M.S. Data Analytics
- J. Walker Gussler M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2016)
 - Initial/current: ORISE Fellowship, Centers for Disease Control and Prevention
- Devika Singh M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2016)
 - Initial/current: Ph.D. student, Bioinformatics, GT
- Adrian Lawsin M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2015)
 - Initial/current: ORISE Fellowship, Centers for Disease Control and Prevention
- Shimantika Sharma M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2013)
 - Initial: Bioinformatics Engineer, Cincinnati Medical Center
 - Current: Software Engineer, Yahoo
- Kristen Knipe M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2011)
 - Initial: ORISE Fellowship, Center for Disease Control and Prevention
 - Current: Bioinformatics Scientist, CDC
- Abhiram Das M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2011)
 - Initial/current: PhD Student, Biology, Georgia Tech, 2011-present
- Anju Varadarajan M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2010)
 - Initial/current: Bioinformatics engineer, BioEdge
- Hoe-Ming Wong Visiting M.S student (Delft Technical University, Netherlands (11/2011-12/2011))
 - Initial/current: PhD student, Delft Technical University
- Taras Galkovyski Visiting M.S. student (Kiev University, at GT Summer 2009)
 - Initial/current: Software engineer, Google
- Sriyak Bhatnagar M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2007)
 - Initial: Bioinformatics Engineer, UC Davis
 - Current: PhD Candidate, Biology, UC Davis
- Amol Shetty M.S. non-thesis (Georgia Tech Bioinformatics, graduated 2007)
 - Initial: Applications Developer/Analyst, Emory University
 - Current: Senior Bioinformatics Software Engineer, Institute for Genome Sciences, Johns Hopkins University

B3. Undergraduate Students

- Mira Patel Spring 2021
- Quan Nguyen Fall 2020-
- Robert Morgan Spring 2019-Fall 2019
- Ellen Cottingham Spring 2019-Fall 2019
- Brighton Ancelin Spring 2017
- Adam Zhang Fall 2016-Spring 2017, Fall 2017-Spring 2018
 - Planned co-author on manuscript to be submitted in Spring 2019
- Yido Jang Spring-Fall 2013
- Victoria Chou Summer 2013

- NSF REU Fellowship
13. Robert Taylor Spring & Summer 2012, Summer 2013
 12. Priya Kurani Spring 2012
 11. Nicholas Wood Spring 2011/Summer 2011
 10. Ryan Carlin Spring 2011/Summer 2011
 9. Lauren Farr Summer 2010
 - Cherry Emerson Research Award in SoB (Spring 2011)
 - Co-author on manuscript (Flores et al., PNAS, 2011)
 8. Zack Sparks Fall 2009-Spring 2010
 7. Brandon Pye Summer 2009
 6. Farhad Amani Spring 2009/Fall 2009/Summer 2010
 5. Sophia Fisher Fall 2007, Summer 2008-Spring 2010
 - Williams-Wall Award in SoB (Spring 2009)
 4. AJ Friend Summer 2008-Fall 2008
 - Phi Kappa Phi award for best Georgia Tech undergraduate (Spring 2009)
 3. Ranni Tewfik Fall 2007/17
 2. Christina Wilson Summer 2007-Spring 2008
 1. Corwin May Summer 2007
 - NSF REU Fellowship

B4. Service on Thesis Committees

1. Andrey Kislyuk Ph.D. student (Georgia Tech Bioinformatics, 2007-2008, switched to Weitz group)
2. Lee Katz Ph.D. student (Georgia Tech Bioinformatics, 2008-2011)
3. Laura Levy M.S. student (Georgia Tech Biology, 2008-2009)
4. Nick Parnell Ph.D. student (Georgia Tech Biology, 2007-2011)
5. Minmin Pan M.S. student (Georgia Tech Biology, 2009-2011)
6. Nicole Mazchuko M.S. student (Georgia Tech Biology, 2009-2011)
7. Prabuddha Bansal Ph.D. student (Georgia Tech Chemical & Biomolecular Engineering, 2010-2011)
8. Yun Lee Ph.D. student (Georgia Tech Biomedical Engineering, 2011-2012)
9. Zhichao Pu Ph.D. student (Georgia Tech Biology, 2007-2015)
10. Rachel Penczykowski Ph.D. student (Georgia Tech Biology, (2009-2013)
11. Hyewon Lee Ph.D. student (Georgia Tech Chemical & Biomolecular Engineering, 2011-2013)
12. David Gibbs M.S. student (Georgia Tech Biology, 2013-2014)
13. Kristen Gulino Ph.D. candidate (NYU, Biology, 2016-2018)
14. Carlos Alexander Ruiz Perez Ph.D. Candidate (Georgia Tech, Bioinformatics, 2018-)
15. Zachary Jackson Ph.D student (Georgia Tech, Physics, 2020)

B5. Mentorship of Postdoctoral Fellows and Visiting Scholars

Postdoctoral Fellows

17. Jacopo Marchi 2020-present
16. Jeremy Harris 2020-present
15. Adriana Sanz 2020-present
14. David Demory 2017-present
 - Research development award (\$10,000, 2018-2019, support for materials for research cruise with NIWA)
 - Co-investigator of a research grant from the Simons Foundation (\$64,030, 2019-2020)
13. Stephen Beckett 2015-present
 - Georgia Tech Climate Change Fellow (2017-8)
12. Joey Leung 2014-2020

- Senior Investigator, Glaxo Smith Kline (UK)
 - Featured in This Week in Microbiology podcast (episode 159, official podcast of the American Society for Microbiology, 2018)
11. Ceyhun Eksin 2015-2017
 - Assistant Professor, Industrial Systems Engineering, Texas A&M (effective Summer 2018)
 - Georgia Tech Serve, Learn, Sustain Fellow (2017)
 - Co-advised with Jeff Shamma (GT – Electrical and Computer Engineering & KAUST), 2015-6
 10. Bradford Taylor 2016
 - Postdoc, Memorial Sloan Kettering Cancer Center (2017)
 9. Hayriye Gulbudak 2014-2016
 - Co-Chair, Special Session on Ecology and Evolution in Microbial Systems, Society for Mathematical Biology Annual Meeting, June 2015
 - Postdoctoral Associate, School of Mathematical and Statistical Sciences, Arizona State
 - Assistant Professor, Mathematics, U-Louisiana-Lafayette (to begin Fall 2017)
 8. Alexander Bucksch 2011-2016
 - Assistant Professor, Plant Biology, UGA, (2016-)
 - Cover article, Plant Physiology, October 2014 for analysis of crop roots in field conditions
 - Co-PI, Center for Data Analytics Seed Grant (2014)
 - NSF Career Award
 7. Michael Cortez 2010-2014
 - National Science Foundation Postdoctoral Fellow in Mathematical Sciences (2012-2014)
 - Assistant Professor, Mathematics, Utah State University (2014-2019)
 - Assistant Professor, Biology, Florida State University (2019-)
 6. Tae Lee 2010-2012
 - Now: Senior Scientist, Johnson and Johnson
 5. Lauren Childs 2010-2012
 - Assistant Professor, Mathematics, Virginia Tech (2016-)
 - Postdoctoral Fellow, Harvard School of Public Health (2012-present)
 4. Olga Symonova 2009-2010
 - Research scientist, IST Austria (2010-present)
 3. Yuriy Mileyko 2007-2009
 - Associate Professor (2013-present), Mathematics, U of Hawaii
 - Visiting Assistant Professor, Duke University & UIUC (2009-2013)
 2. Hao Wang 2007-2009
 - Associate Professor & Associate Professor (w/tenure), Mathematics, U of Alberta
 - Co-advised with Howie Weiss (GT – Mathematics)
 1. Charles Price 2007-2010
 - NIMBioS Sabbatical Visitor, U of Tennessee-Knoxville (2015-2016)
 - Assistant. Prof. & Associate Professor (since 2014), Plant Biology, U of Western Australia (departed due to personal family health reasons, post-tenure)
 - 2008 Murray F. Buell Award from the Ecological Society of America

Visiting Scholars

8. Yu-Hue Chen Feb – March 2019, 2 week visit
 - PhD student, Hong Kong University of Science and Technology
7. David Talmy March 2017, 3 day visit
 - Postdoctoral Fellow, MIT
6. Stefania Ottaviano August 2016, 4 week visit
 - Postdoctoral Fellow, U of Trento, Trento, Italy

5. Maria Barbarossa May 2015, 1 week visit
 - Postdoctoral Fellow, University of Szeged, Hungary
4. Catherine Penington February 2015, 2 week visit
 - Postdoctoral Scientist, U of New South Wales, Australia
3. Sergi Valverde Multiple visits, 2 weeks: July 2010 & December 2011
 - Visiting Professor, University of Pompeu-Fabra Barcelona, Spain
 - Co-authored 3 publications (PNAS, ISME J & Trends in Microbiology) with one additional manuscript under review (Methods in Ecology & Evolution)
2. Bart Haegeman Multiple visits, 2 months (9/2009-10/2009) & 2 weeks (2/2011)
 - Scientist, CNRS, Station d'Ecologie Experimentale du CNRS a Moulis, France
 - Co-authored 3 publications (BMC Bioinformatics x 2, ISME J)
1. Takeshi Miki February 2008, one week visit
 - Assistant Professor, National Taiwan University

C. Other Teaching Activities

iGEM Advising (2010-2012)

I was one of three faculty co-founders of Georgia Tech's first synthetic biology team (w/E. Gaucher – Biology – and Mark Styczynski – Chemical and Biological Engineering) and the primary modeling expert & initial fundraiser for the team. The aim of iGEM is to have students design, build and analyze a synthetic microbe to perform a specific task. In 2010, 15 students participated in the team from April – November, culminating in a Silver Medal in the 2010 iGEM jamboree with a project to develop an improved cold-shock response in bacteria. In 2011, we selected new team members, raised >10K in funds with a project focus on CRISPRs (an adaptive immune defense in bacteria). The team won a Bronze medal for their contributions. Both years the team met on a weekly basis for a 4 month period with additional preparation for the multi-team competition. iGEM is an ongoing fixture at Georgia Tech.

2010 Team Page

<http://2010.igem.org/Team:GeorgiaTech>

2011 Team Page

<http://2011.igem.org/Team:GeorgiaTech/CRISPR>

VI. Service

A. Professional Contributions

Conference Organizing:

Aquatic Virus Workshop 10, Kyoto, Japan, Feb 2021. International Steering Committee Member (Chair: Keizo Nagasaki)

Covid-19 Rapid Response Forum, Atlanta, GA, March 9, 2020 (Organizer: **J.S. Weitz**; speakers Weitz, P. Santangelo (GT), and Trevor Bedford (Fred Hutch))

AAAS Annual Meeting, Washington DC, Feb 14-17, 2019, Symposium session “The Entangled Fates of Viruses and Microbes” (Chair: **J.S. Weitz**)

Simons Foundation Collaboration on Ocean Processes and Ecology Modeling Workshop, Seattle, WA October 29-31, 2018 (Chair: **J.S. Weitz**)

Simons Foundation Collaboration on Ocean Processes and Ecology Modeling Workshop, Atlanta, GA, June 13-15, 2018 (Chair: **J.S. Weitz**)

ASM Microbe, Atlanta, GA, June 7-11, 2018, Symposium session “Tiny drivers of evolution: phage and their hosts” (Session co-chairs: Alison Buchan and **J.S. Weitz**)

QBioS Hands-On Modeling Workshop, Atlanta, GA May 22-23, 2017 (Chair: **J.S. Weitz**)

Simons Foundation Collaboration on Ocean Processes and Ecology Modeling Workshop, Atlanta, GA, May 16-18, 2017 (Chair: **J.S. Weitz** with Mick Follows)

CIFAR-GBMF Workshop in Marine Microbial Ecology and Evolution. Steering Committee Member. Sintra, Portugal, May 8-12, 2017 (Chair: Willie Wilson, Andrew Hardy Foundation)

Workshop on Statistical Physics/Biology – Quantitative Laws from Microbial Physiology to Ecology, Steering Committee Member. Lake Como, Italy, June 13-24, 2016, (Chair: Marco Cosentino Lagomarsino, Institute Marie Curie)

Ecology and Evolution of Infectious Disease, Organizing Committee, UGA, Athens, GA, May 27-29, 2015 (Chairs: Andrew Park and Sonia Altizer)

Dynamic Models of Ebola in W. Africa: Linking Predictions, Control Efforts and Policy, Organizers: **J.S. Weitz** (chair) and colleagues at GT, Emory, UGA, CDC, McMaster and UT-Austin. Atlanta, GA Jan 22-23, 2015

Quantitative Laws of Genome Evolution. Steering Committee Member, Lake Como, Italy, June 27-July 5, 2013 (Chair: Marco Cosentino Lagomarsino)

Frontiers in Systems Biology. Organizing Committee Member, Georgia Tech, March 24-26, 2013 (Chair: Eberhard O. Voit, Georgia Tech)

Environmental Virology. Steering Committee Member, U of Arizona & Biosphere 2, January 6-12, 2013 (Chair: Matthew Sullivan, U of Arizona)

Ocean Viral Dynamics. Organizers: **J.S. Weitz** and S.W. Wilhelm. National Institute for Mathematical and Biological Synthesis. Planned meetings: Apr 20-22, 2012; Oct 22-24 2012; Jun 3-5 2013 & Jan 7-9 2014. (16 scientists participating in total, including 3 international).

Microbes to Metazoans: Regulation, Dynamics, and Evolution of Social Behavior. Organizers: B. Hammer, **J. S. Weitz**, and M. Goodisman. Georgia Tech, Atlanta, GA (12/2/2009–12/4/2009).

Viral Paradigms: Molecules, Cells, Ecosystems and Infectious Disease. Organizers: **J. S. Weitz**, H. Weiss, and R. Antia. Georgia Tech, Atlanta, GA (1/14/2008–1/16/2008).

DARPA Workshop on Ocean Biocomplexity: Metagenomics and Ecology. Organizers: **J. S. Weitz** and J. Eisen. Seminars, discussions, and working groups. UC–Berkeley, Berkeley, CA (3/20/2006–3/23/2006).

Advances and Applications in the Environmental and Biological Sciences: Connecting Scientists and Policymakers. Organizer: **J. S. Weitz.** Meeting w/ Dr. John H. Marburger III, Science Adviser to the President. Princeton University, Princeton, NJ (3/1/2005).

Advisory Committees:

Member of the External Advisory Board for the National Research Traineeship in Environmental & Ecological Informatics at Northern Arizona University (2019-2020).

Member of the Scientific Advisory Board for the National Institute for Mathematical and Biological Synthesis, U of Tennessee-Knoxville, Tennessee, (2014-2017).

Editorial Board Memberships:

Guest Editor, PNAS (2020 x 1)

Senior Editor, ISME J (2018-)

Editorial Board Member, Virus Evolution (2017-)

Editorial Board Member, Journal of Theoretical Biology (2010-)

Editorial Board Member, Scientific Reports (2017-2019)

Editorial Board Member, mSystems (2015-2018)

Review Editor, Frontiers in Virology (2012-2017)

Guest Editor, PLoS Pathogens (2017 x 2) & Guest Editor, PLoS Comp. Biology (2014, 2015, 2017)

Peer Reviewing:

Manuscripts reviewed for:

American Journal of Botany, American Naturalist, Applied and Environmental Microbiology, Aquatic Microbial Ecology, Biochemical Engineering Journal, Bioessays, Bioinformatics, British Journal of

Cancer, Bulletin of Mathematical Biology, Coral Reef, Ecological Complexity, Ecology, Ecology Letters, eLife, Environmental Microbiology and Environmental Microbiology Reports, FEMS Microbial Ecology, Functional Ecology, ISME Journal, Journal of Theoretical Biology, Journal of Virology, Mathematical Biosciences, mBio, Microbiology and Molecular Biology Reviews, Molecular Biosystems, mSystems, Nature, Nature Microbiology, Nature Medicine, Physical Review E, Physical Review Letters, Phys Rev X, Plant, Cell and Environment, PLoS Biology, PLoS Pathogens, PLoS Computational Biology, PLoS One, Proceedings of the National Academy of Sciences USA, Reviews of Modern Physics, Science, Science Advances, Scientific Reports, TREE, Tree Physiology, Trends in Microbiology, and Viruses.

Review panelist:

- NIH IDMX50 Study Section, Phage Biology and Bacteriophage Therapy (2020)
- NSF, Division of Environmental Biology (2008, 2010, 2013)
- Burroughs Wellcome Fund: Biology Immersion for Physical Scientists, Mathematicians and Engineers (Fall 2011)
- Bellman Prize Committee, Best Paper published in Mathematical Biosciences 2010-2012 (Fall 2013)

Ad-hoc proposals reviewed for:

- Tel Aviv University Center for Combatting Pandemics (2021)
- The Royal Society (2021)
- Red Team Review, Ohio State University, Department of Microbiology (2020)
- European Research Commission (2019)
- NSF (2007, 2008, 2009, 2011, 2013, 2014, 2015 x 2, 2016 x 2, 2017, x10 2019, x2 2020)
- Swiss National Science Foundation (2015)
- Templeton Research Foundation (2013)
- ETH-Zurich Research Commission (2013)
- Cambridge University Press (2012)
- US-Israel Binational Science Foundation (2011)
- Israel Science Foundation (2011)
- Springer (2010)
- Center for Complexity Science, Israel (2007)

External thesis reader

- Hilje Doekes, Ph.D. student in Theoretical Biology at Utrecht University ‘Microbial evolution at multiple scales’ (2020)
- Elad Shtilerman, PhD candidate in the Porter School of Environmental Studies, Tel Aviv University, Israel, “Population and Community Dynamics on Spatial Networks” (2015)
- Silja Heilmann, PhD candidate in Physics at the Niels Bohr Institute, University of Copenhagen, Denmark, “Coexistence, cooperation and communication” (2012)

Professional Memberships

American Association for the Advancement of Science, American Physical Society, Ecological Society of America, International Society for Microbial Ecology, Society for Mathematical Biology

B. Public and Community Service

Blogging, Talks for the General Public, Media

Panelist, 2021 Ivan Allen Jr. Prize for Social Courage for Dr. Anthony Fauci, Georgia Institute of Technology, March 15, 2021

Pandemic Forum on Socioeconomic Impacts of Covid-19, International Centre for Theoretical Physics, Trieste, Italy, December 16, 2020

Podcast: “Did you wash your hands?” w/Sam Whitehead (WABE 90.1, NPR Atlanta), December 15, 2020, <https://www.wabe.org/episode/calculating-your-risk-of-coronavirus-exposure-as-the-pandemic-surges/>

Talk: “Covid-19 Near and Long-Term Dynamics”, policy meeting with the Georgia Municipal Association; an alliance of Georgia’s Mayors, w/Clio Andris (~100 Mayors attending) 10/20/20

Podcast: “Lost in the Stacks”, long-form interview on Covid-19 re-opening, July 31, w/Wendy Hagenmeier; wrek.org

Radio programs: Georgia Public Radio ‘Political Rewind’ on COVID-19 (1 hr long programs; featured guest; host: Bill Nigut, w/Kevin Riley (AJC editor) and others, March 26, April 23, June 18, July 26; November 25, 2020, April 9, 2021)

- <https://www.gpb.org/news/2020/11/25/political-rewind-covid-19-cases-rise-ahead-of-holidays-what-do-manage-risk>
- <https://www.gpb.org/news/2020/07/27/political-rewind-anxiety-exhaustion-and-uncertainty-school-year-approaches>
- <https://www.gpbnews.org/post/political-rewind-closer-look-georgias-outbreak-numbers>
- <https://www.gpbnews.org/post/political-rewind-confusion-over-next-steps-crisis>
- <https://www.gpbnews.org/post/political-rewind-coronavirus-remains-daunting-shifting-issue>

Podcast: “Shield Immunity vs. Herd Immunity”. w/Steven Cherry of TTI/Vanguard (5/2020) <https://www.ttvanguard.com/content/Getting-Back-Work%E2%80%94Shield-Immunity-vs-Herd-Immunity-Conversation-Joshua-Weitz>

Blog: The Billion-Year Old Golden Rule of Symbiosis, *Sinai and Synapses (and Orbiter)*. w/Nicole Gerardo and Jonathan Crane (4/2019)

Session chair: Social microbes and Symbiosis, Congregation Shearith Israel, Invited Speaker: Nicole Gerardo (Emory U), part of the AAAS Scientists in Synagogues series. (3/24/2019)

Public talk: “Microbes Get Sick, Too: On Science at the Interface”, Montgomery Blair High School, Math and Science Magnet, Research Convention, Silver Spring, MD (1/11/2018)

Public talk: “Microbes Get Sick Too”, Shearith Israel Synagogue, Atlanta, GA (10/25/2017)

Panel: Association of Health Care Journalists Panel on Antibiotic Resistance (10/19/2017) <https://healthjournalism.org/blog/2017/10/ahcj-atlanta-panel-discusses-antibiotic-resistance/>

Public talk: “Microbes Get Sick Too”, Science, Technology, Engineering, Arts and Mathematics (STEAM) Coleman Middle School, Lawrenceville, GA (9/20/2017)

Public talk: March for Science, Plenary Speaker, “Conscience of a Scientist”, Candler Park, Atlanta, GA (4/22/2017)

Podcast: “MindPop – Should Scientists March?” Prof. David Sehat, Georgia State (4/9/2017)

Public talk: “Microbes Get Sick Too”, Atlanta Science Tavern, Manuel’s Tavern, Atlanta, GA (9/24/2016) <https://www.meetup.com/AtlantaScienceTavern/events/233612949/>

Blog: “Vaccines: safe, effective, and a critical public good”, Amplifier Blog, Georgia Tech (1/18/2017) <http://admin.amplifier.gatech.edu/articles/2017/01/vaccines-safe-effective-and-critical-public-good>

Blog: “Would you like extra viruses with your yogurt”, Amplifier Blog, Georgia Tech (11/17/2016) <http://amplifier.gatech.edu/articles/2016/11/would-you-extra-viruses-your-yogurt>

Radio: “Can we curb selfish behavior?”, On Second Thought w/Celeste Headlee, Georgia Public Broadcasting (11/21/2016) <http://gpbnews.org/post/can-we-curb-selfish-behavior-one-georgia-tech-study-has-answer>

Radio: “Wir nehmen, bis nichts mehr daist”, DRadio Wissen, German NPR, (11/22/2016) <http://dradiowissen.de/beitrag/ressourcen-knappheit-wir-nehmen-bis-nichts-mehr-da-ist>

Invited participant at workshops

Mechanisms of Resistance Symposium, Yale University (November 2019)

Working Group: Integrating Critical Phenomenon & Multi-Scale in Virus Evolution. Santa Fe Institute, Santa Fe, New Mexico. (November 2018)

BARDA, Public Health Issues for Ebola: Modeling for Policy, Washington DC (December 15, 2014)
 National Academies of Science and Keck Futures Initiative, Collective Behaviors, Irvine, CA (11/2014)
 *This workshop arose from a proposal I submitted in Spring 2010, in collaboration with Brian Hammer, Michael Goodisman, and participants of a GT workshop on social behaviors.
 American Association for Microbiology colloquium, The uncharted world of viruses, San Francisco, CA (7/10/13-7/12/13)
 Marine Microbiology Initiative modeling workshop, Moore Foundation, Miami, FL (3/6/2013-3/7/2013)
 Microbial and Viral Evolution: Kavil Institute of Theoretical Physics, Santa Barbara, CA (2/28/11-3/5/2011).
 NAS and Keck Futures Initiative Synthetic Biology, Irvine, CA (11/20/2009-11/22/2009).
 NAS and Keck Futures Initiative Complex Systems, Irvine, CA (11/13/2008-11/15/2008).
 Mathematical Models, Microbes and Evolutionary Diversification. Organizers: S. Forde and I. Gudelj. National Evolutionary Synthesis Center, Durham, NC (4/8/2008-4/10/2008).
 Scaling in Biology: NSF Workshop. Organizer: Alan Hastings. UC-Davis, Davis, CA (5/30/2007-6/1/2007).
 Cooperation Among Microorganisms: DARPA Workshop. Organizers: N. Wingreen and B. Bassler. Park City, Utah (8/23/2006-8/28/2006).
 State-Dependent Delays in Regulatory Networks. Organizers: T. Buchman, J. Lorsch, and K. Mishaikow. DIMACS Center, Rutgers University (3/2/2006-3/3/2006).
 DARPA Workshop on Fitness Landscapes. Organizer: R. Lenski. UC-Berkeley (2/3/2006-2/5/2006).
 First Young Researchers Workshop in Mathematical Biology. Organizers: A. Friedman and MBI Postdocs. Mathematical Biology Institute, Ohio State University (3/29/2005-4/1/2005).
 From Structure to Dynamics in Complex Ecological Networks. Organizers: J. Dunne and M. Pascual. Santa Fe Institute (2/19/2004-2/21/2004).

C. Institute Contributions

Major Leadership Roles

Founding Director of the QBioS PhD (2015-)

I am the Founding Director of the QBioS PhD program at Georgia Tech, an interdisciplinary graduate program that continues to establish itself as a national and international leader, through recruitment, education, training, and outreach initiatives. At present, the QBioS program includes 31 current students distributed across four cohorts and supported by nearly 60 program faculty. We also have one graduate: Dr. Elma Kajtaz who defended her thesis in spring 2019 and who is now employed as a Senior Data Scientist at Aetna Health. All inaugural cohort students have successfully completed proposals of their dissertation work and are admitted to PhD candidacy. Students across cohorts are on track for committee formation and thesis proposals. Multiple students have won awards for their work, including a NSF GRFP awardee, ARC and PEO scholars, and multiple Institute-level awards. The QBioS program leadership includes a 9 member graduate committee with the support of a 40% program coordinator. A number of programmatic innovations have been developed since inception, including the following:

- A Foundations in Quantitative Biosciences course I developed is now the basis for a book series to be published by Princeton University Press, anticipated publication Summer 2021;
- An annual hands-on workshop for modeling in the biosciences attended by >30 students and faculty from GT, Spelman College, and UGA (courses took place in May 2017, May 2018, and May 2019 with another course planned in May 2020)
- Development of a QBioS rotations program in the 1st year, inculcating a sense of community and enhancing the interaction amongst students and faculty in the program.
- Establishment of a QBioS Graduate Student Association in Fall 2019.

- Initiation of a QBioS Professional Development course (which I led in the first three years and now significantly enhanced and expanded by Sam Brown, QBioS faculty member).
- Started a new QBioS development fund (multiple inaugural year donors in 2020)

In addition, multiple QBioS students have now submitted their first papers for submission and we anticipate a major group of thesis defenses in Spring 2021. The program is primed to build on early successes, sustaining the transition from pre-proposals to dissertation research, recruiting new cohorts, and taking further steps to international excellence and long-term sustainability. More at qbios.gatech.edu & on twitter [@QBios_GT](https://twitter.com/QBioS_GT).

Initiated an Institute-wide Effort to Reduce Graduate Student Fees at Georgia Tech (2019-)

I have led a long-term (and ongoing) campaign to systematically reduce the fees paid by graduate students while serving as graduate research assistants and/or as graduate teaching assistants at GT. In March 2019, concerned over the financial stresses of PhD students, I initiated a cross-Institute comparison of graduate fees. I discovered, and then publicized through an Atlanta Journal Constitution Op-Ed, blogs, tweets, and a shareable google doc/data that Georgia Tech imposed \$2,776 per year in post-tax fees on PhD students – the highest mandatory fees of any AAU institution in 2018-2019. I then initiated a bottom-up faculty effort to formally request the reduction of graduate student fees at Georgia Tech. I organized a resolution and led its passage at Georgia Tech’s Faculty Executive Board (in August 2019). I then catalyzed the dissemination of the resolution across campus, holding an open town-hall, which led to a public resolution including >340 faculty signatories which was then discussed and was authorized in October 2019 by a vote by the GT Academic Faculty Senate. This resolution spurred the creation of a Executive Leadership Team (ELT) ad hoc working group (on which I served), which just communicated our recommendations: including the request to reallocate ~\$2M in administrative funds in FY 2020 to reduce graduate fees by over \$1000/yr for all GRA/GTA students. I continue take a data-driven approach to transform, support, and improve the support of graduate students core to GT’s research, teaching, and entrepreneurship missions. The central working group recommendations have been approved by the ELT and fee recommendations are under review by the Board of Regents of the University System of Georgia for state-wide assessment as part of a newly formed ‘fee working group’.

School and Institute Committee Service

2020-2021

Founding and Co-Director, Interdisciplinary PhD in Quantitative BioSciences
 School of Biological Sciences Advisory Committee
 School of Biological Sciences Strategic Planning and Hiring Committee
 Advising Executive Leadership Team on Covid-19 Testing Initiative

2019-2020

Founding Director, Interdisciplinary PhD in Quantitative BioSciences
 School of Biological Sciences Advisory Committee
 Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee (through Fall 2019)
 Provost’s ad-hoc working group on graduate student support

2018-2019

Founding Director, Interdisciplinary PhD in Quantitative BioSciences
 School of Biological Sciences Advisory Committee
 Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee

2017-2018

Founding Director, Interdisciplinary PhD in Quantitative BioSciences

School of Biological Sciences Advisory Committee
Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee
Ad-hoc reviewer, Georgia Tech EVPR Committee for Reviewing Keck Foundation pre-proposals

2016-2017

“Blue Sky” Retreat Co-Lead, Environmental Microbiome Research at Georgia Tech
Founding Director, Interdisciplinary PhD in Quantitative BioSciences
School of Biology Advisory Committee
Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee
Faculty Panelist, College of Sciences and College of Engineering Joint Mentoring Initiative, Conflict Management (12/13/2016)
Georgia Tech Packard Fellowship internal review committee

2015-2016

Founding Director, Interdisciplinary PhD in Quantitative BioSciences
Search Committee for Chair of Biology, School of Biology
Search Committee for TT position in Chemical Ecology, School of Biology
School of Biology Advisory Committee
Abel Professor Fellowship Selection Committee, School of Biology
Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee
High-performance Computing Working Group, College of Sciences

2014-2015

Parker H. Petit Institute for Bioengineering and Bioscience Steering Committee
Chair, Planning Committee for the initiation of a new PhD in Quantitative BioSciences
School of Biology Advisory Committee
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.

2013-2014 (note: on sabbatical at the U of Arizona)

Chair, Planning Committee for the initiation of a new PhD in Quantitative BioSciences
School of Biology Advisory Committee

2012-2013

Chair, Computational and Quantitative Biology Planning Committee
Graduate Committee, School of Biology
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.
Judge, Undergraduate Research Symposium (4/2013)
Judge, Georgia Tech Research and Innovation Conference (3/2013)

2011-2012

Biophysics Faculty Search Committee, School of Physics – two successful hires
Graduate Committee, School of Biology
Computational and Quantitative Biology Planning Committee
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.
Judge, Georgia Tech Research and Innovation Conference (2/7/2012)

2010-2011

Ad-hoc School of Biology planning committee, School of Biology

Graduate Committee, School of Biology
Computational and Quantitative Biology Planning Committee
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.

2009-2010

iGEM Team Leader & Co-Instructor, 1st Georgia Tech iGEM team
Seminar Coordinator, School of Biology
Computational and Quantitative Biology Planning Committee
IBSI Graduate Program Planning Committee
Judge, Georgia Tech Research and Innovation Conference (2/8/2010)
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.

2008-2009

Seminar Coordinator, School of Biology

- Initiated sponsorship agreement with VWR to support seminar activities including creation of a postdoctoral excellence award in experimental biology & a distinguished lecture

Computational and Quantitative Biology Planning Committee
IBSI Graduate Program Planning Committee
Founder and organizer of “Cherry Emerson Coffee House” – a weekly gathering of School of Biology faculty, students and staff.

2007-2008

Chair, School of Biology Seminar Committee
Computational and Quantitative Biology Planning Committee
Computational Biology Faculty Search Committee – one successful hire
Planning Committee, Center for Research at the Interface of Mathematical and Biological Sciences (CIMBS)