Curriculum Vitae

Thomas Pfeiffer
Professor for Computational Biology / Biochemistry
NZ Institute for Advanced Study
Massey University, Albany
Auckland, New Zealand

Academic Qualifications

2003 PhD, ETH Zuerich, Switzerland
1999 Diploma (Biophysics), Humboldt University Berlin, Germany

Professional Positions

2012 – on Professor for Computational Biology and Biochemistry, Massey University
2010 – 2012 Secondary Affiliation as Adjunct Assistant Professor, Tufts University, Boston, USA
2005 – 2012 Research Scientist at the Program for Evolutionary Dynamics, Harvard University, Cambridge, USA
2003 – 2005 Postdoctoral Researcher at the Computational Laboratory, ETH Zürich, Switzerland

Research Interests

My main research focus is game theory, with applications ranging from prediction markets to microbial metabolism. I use mathematical and computational modelling techniques as well as experimental approaches. My research has a strong multi-disciplinary component and includes collaborations with researchers from diverse disciplines, including computer science, economics, psychology and biomedical research.

Distinctions, Prizes, Scholarships

2015 Visiting Fellow, Institute for Advanced Study, Berlin
2014 Visiting Fellow, Isaac Newton Institute, Cambridge
2010 – 2012 FQEB Prize Fellowship
2005 – 2010 Branco Weiss Fellowship by Society in Science,
2003 – 2005 Postdoctoral Fellowship at the ETH Computational Laboratory
2004 ETH silver medal for an outstanding PhD thesis

Peer-reviewed publications: 38

Google scholar citation metrics (11/2016): h-index 22; >2.800 citations

Refereed journal articles
*denotes joined first authors

1. Camerer CF, Dreber A, Forsell E, Ho T, Huber J, Johannesson M, Kirchler M, Almenberg J, Altmejd A, Chan T, Heikensten E, Holzmeister F, Imai T, Isaksson S, Nave G, Pfeiffer T, Razen M, Wu H Do lab experiments in economics replicate? Science (2016) 351: 10.1126/science.aaf0918.
2. Widder S, Allen R, Pfeiffer T, Curtis TP, Wiuf C, Sloan WT, Cordero OX, Brown SP, Momeni B, Shou W, Kettle H, Flint HJ, Haas AF, Laroche B, Kreft JU, Rainey PB, Freilich S, Schuster S, MilferstedtK, van der Meer JR, Groβkopf T, Huisman J, Free A, Picioreanu C, Quince C, Klapper I, Labarthe S, Smets BF, Wang H, Isaac Newton

Institute Fellows, Soyer OS. Challenges in microbial ecology: building predictive understanding of community function and dynamics. ISME J (2016) 10.1038/ismej.2016.45.
3. *Dreber A, *Pfeiffer T, Almenberg J, Isaksson S, Wilson B, Chen Y, Nosek B, Johannesson M. Using prediction markets to estimate the reproducibility of scientific research. Proceedings of the National Academy of Sciences 112 (2015) 15343-47
4. *Munafo M, *Pfeiffer T, Altmejd A, Heikensten E, Almenberg J, Bird A, Chen Y, Wilson B, Johannesson M, Dreber A. Using Prediction Markets to Forecast Research Evaluations. R Soc Open Science 2 (2015) 150287.
5. Pfeiffer T, Morley A. An evolutionary perspective on the Crabtree effect. Front. Mol. Biosci. 1 (2014), 17.
6. Okeke IN, Manning RS, Pfeiffer T. Diagnostic schemes for reducing epidemic size of african viral hemorrhagic fever outbreaks. J Infect Dev Ctries 8 (2014), 1148-59.
7. Evangelou E, Siontis KCM, Pfeiffer T, Ioannidis JPA. Perceived information gain from randomized trials correlates with publication in high impact factor journals. J Clinical Epidemiology 65 (2012) 1274-81
8. Pfeiffer T, Tran L, Krumme C, Rand DG. The value of reputation. Proc R Soc Interface 9 (2012), 2791-7.
9. Pfeiffer T, Bertram L, Ioannidis JPA. Quantifying Selective Reporting and the Proteus Phenomenon for Multiple Datasets with Similar Bias. PLoS ONE 6 (2011) e18362.
10. Pfeiffer T, Almenberg J. Prediction markets and their potential role in biomedical research – a review. Biosystems 102 (2010) 71-6.
11. Soyer OS, Pfeiffer T. Evolution under fluctuating environments explains observed robustness in metabolic networks. PLoS Comp Biol 6 (2010) e1000907.
12. Almenberg J, Kittlitz K, Pfeiffer T. An experiment on prediction markets in science. PLoS ONE 4 (2009) e8500.
13. Rand DG, Pfeiffer T. Systematic differences in citation count across publication tracks at PNAS. PLoS ONE 4 (2009) e8092.
14. Rutte C, Pfeiffer T. Evolution of reciprocal altruism by copying of observed behavior. Current Science 97 (2009) 1573-78.
15. Pfeiffer T, Hoffmann R. Large-Scale Assessment of the Effect of Popularity on the Reliability of Research. PLoS ONE 6 (2009) e5996.
16. Novak M, Pfeiffer T, Ackermann M, Bonhoeffer S. Bacterial growth properties at low optical densities. Antonie Van Leeuwenhoek 96 (2009) 267-74.
17. Rand DG, Pfeiffer T, Dreber A, Sheketoff R, Wernerfelt N, Benkler Y. Dynamic remodeling of in-group bias during the 2008 presidential election. Proceedings of the National Academy of Sciences 106 (2009) 6187-91.
18. Pfeiffer T, Rand DG, Dreber A. Decision-making in research tasks with sequential testing. PLoS ONE 4 (2009) e4607.
19. Schuster S, Kreft J-U, Schroeter A, Pfeiffer T. Use of game-theoretical methods in biochemistry and biophysics. J Biol Phys. 34 (2008) 1-17.
20. Schuster S, Pfeiffer T, Fell DA. Is maximization of molar yield in metabolic networks a universal principle? J Theor Biol. 252 (2008) 497-504.
21. Pfeiffer T, Hoffmann R. Temporal patterns of genes in scientific publications. Proceedings of the National Academy of Sciences 104 (2007) 12052-6.
22. Steiner UK, Pfeiffer T. Optimizing time and resource allocation trade-offs for investment in morphological and behavioral defense. Am Nat. 169 (2007) 118-29.
23. Novak M, Pfeiffer T, Lenski RE, Sauer U, Bonhoeffer S. Experimental evidence for an evolutionary trade-off between growth rate and yield in E. coli. Am Nat. 168 (2006) 242-251.

24. Soyer OS, Pfeiffer T, Bonhoeffer S. Simulating the evolution of signal transduction networks. J Theor Biol. 241 (2006) 223-232.
25. Pfeiffer T, Soyer OS, Bonhoeffer S. Evolution of connectivity in metabolic networks. PLoS Biol. 3 (2005) e228.
26. Pfeiffer T, Rutte C, Killingback T, Taborsky M, Bonhoeffer S. Evolution of cooperation by generalized reciprocity. Proc Biol Sci. 272 (2005) 1115-1120.
27. Pfeiffer T, Schuster S. Game-theoretical approaches to studying the evolution of biochemical systems. Trends Biochem Sci. 30 (2005) 20-25.
28. Pfeiffer T, Bonhoeffer S. Evolution of crossfeeding in microbial populations. Am Nat. 163 (2004) E126-135.
29. Pfeiffer T, Bonhoeffer S. An evolutionary scenario for the transition to undifferentiated multicellularity. Proceedings of the National Academy of Sciences 100 (2003) 1095-1098.
30. Schuster S, Klamt S, Weckwerth W, Moldenhauer F, Pfeiffer T. Use of network analysis of metabolic systems in bioengineering. Bioprocess Biosyst Eng. 24 (2002) 363-372.
31. Pfeiffer T, Bonhoeffer S. Evolutionary consequences of tradeoffs between yield and rate of ATP production. Z Phys Chem. 216 (2002) 51-63.
32. Schuster S, Pfeiffer T, Moldenhauer F, Koch I, Dandekar T. Exploring the pathway structure of metabolism: decomposition into subnetworks and application to Mycoplasma pneumoniae. Bioinformatics 18 (2002) 351-361.
33. Pfeiffer T, Schuster S, Bonhoeffer S, Cooperation and competition in the evolution of ATP-producing pathways. Science 292 (2001) 504-507.
34. Pfeiffer T, Sanchez-Valdenebro I, Nuno JC, Montero F, Schuster S. METATOOL: for studying metabolic networks. Bioinformatics 15 (1999) 251-257.

Refereed conference proceedings

35. Pfeiffer T, Gao A, Mao A, Chen Y, Rand DG. Adaptive Information Polling and Aggregation. Proc. of the 26th Conference on Artificial Intelligence - AAAI (2012).
36. Pfeiffer T, Dandekar T, Moldenhauer F, Schuster S. Topological Analysis of Metabolic Networks. Application to the Metabolism of Mycoplasma pneumoniae. In: BioThermoKinetics 2000. Animating the Cellular Map, Stellenbosch University Press, Stellenbosch (2000) 229-234.
37. Schuster S, Pfeiffer T, Moldenhauer F, Koch I, Dandekar T. Structural Analysis of Metabolic Networks: Elementary Flux Modes, Analogy to Petri Nets, and Application to Mycoplasma pneumoniae. In: Proceedings of the German Conference on Bioinformatics, Logos Verlag, Berlin (2000) 115-120
38. Schuster S, Fell DA, Pfeiffer T, Dandekar T and Bork P: Elementary Modes Analysis Illustrated with Human Red Cell Metabolism. In: BioThermoKinetics in the Post Genomic Era, Chalmers, Göteborg (1998) 332-339.