

Philip Gerlee - Publications

Journal papers

- *Searching for synergies: matrix algebraic approaches for efficient pair screening*, P. Gerlee, L. Schmidt, N. Monsefi, T. Kling, R. Jörnsten, S. Nelander. Submitted.
- *The impact of phenotypic switching in glioma growth and invasion*, P. Gerlee and S. Nelander, In revision.
- *The effect of space in the war of attrition*, P. Gerlee and T. Lundh, In Press, Physical Review E.
- *Evolving homeostatic tissue using genetic algorithms*, P. Gerlee, D. Basanta and A.R.A. Anderson, Progress in Biophysics and Molecular Biology, 106:414-425, 2011.
- *Structural correlations in bacterial metabolic networks*, S. Bernhardsson, P. Gerlee and L. Lizana, BMC Evolutionary Biology, 11:20, 2011.
- *Productivity and diversity in a cross-feeding population of digital organisms*, P. Gerlee and T. Lundh, Evolution, 64:2716–2730, 2010.
- *Diffusion-limited tumour growth: Simulation and analysis*, P. Gerlee and A.R.A. Anderson, Mathematical Biosciences and Engineering, 7:385-400, 2010.
- *Pathway identification by network pruning in the metabolic network of Escherichia coli*, P. Gerlee, L. Lizana and K. Sneppen, Bioinformatics, 25:3282-3288, 2009.
- *Gene divergence and pathway duplication in the metabolic network of yeast and digital organisms*, P. Gerlee, T. Lundh, B. Zhang and A.R.A. Anderson, Journal of the Royal Society Interface, 6:1233-1245, 2009.
- *Evolution of cell motility in an individual-based model of tumour growth*, P. Gerlee and A.R.A. Anderson, Journal of Theoretical Biology, 259:67-83, 2009.
- *A Spatial Model of Tumour-Host Interaction: Application of Chemotherapy*, with P. Hinow et al., Mathematical Biosciences and Engineering, 6:521-546, 2009.
- *Modelling evolutionary cell behaviour using neural networks: Application to tumour growth*, P. Gerlee and A.R.A. Anderson, BioSystems, 95:166-174, 2009.
- *Microenvironment driven invasion: A multiscale multimodel investigation*, A.R.A. Anderson, K. Rejniak, P. Gerlee and V. Quaranta, Journal of Mathematical Biology, 58:579-624, 2009.
- *Cancer invasion emerges from microenvironment selection: Quantitative predictions from multi-scale mathematical models*, V. Quaranta, K. Rejniak, P. Gerlee and A.R.A. Anderson, Seminars in Cancer Biology, 18:338-48, 2008.
- *The emergence of scale-free genetic architecture in digital organisms*, P. Gerlee and T. Lundh, Artificial Life Journal, 14:265-275, 2008.
- *Modelling of cancer growth, evolution and invasion: Bridging scales and models*, A.R.A. Anderson, K. Rejniak, P. Gerlee and V. Quaranta, Mathematical Modelling of Natural Phenomena, 2:1-29, 2008.

- *A hybrid cellular automaton model of clonal evolution in cancer: The emergence of the glycolytic phenotype*, P. Gerlee and A.R.A. Anderson, *Journal of Theoretical Biology*, 250:705-722, 2008.
- *Stability analysis of a hybrid cellular automaton model of cell colony growth*, P. Gerlee and A.R.A. Anderson, *Physical Review E* 75, 051911, 2007.
- *An evolutionary hybrid cellular automaton model of solid tumour growth*, P. Gerlee and A.R.A. Anderson, *Journal of Theoretical Biology*, 246:583-603, 2007.

Conference proceedings (refereed)

- *Weak emergence and complexity*, H. Thorén and P. Gerlee, *Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems*, 2010.
- *Rock-scissor-paper dynamics in a digital ecology*, P. Gerlee and T. Lundh, *Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems*. 2010.
- *Evolving homeostatic tissue using genetic algorithms* (Extended abstract), P. Gerlee, D. Basanta and A.R.A. Anderson, *Proceedings of the Twelfth International Conference on the Synthesis and Simulation of Living Systems*. 2010.
- *The genetic coding style of digital organisms*, P. Gerlee and T. Lundh, *ECAL 2005, LNAI 3630*, pp. 854-863, 2005.

Books and book chapters

- *Vetenskapliga Modeller (Scientific Models)*, P. Gerlee and T. Lundh, *Studentlitteratur*, 2012.
- *A stochastic model of glioblastoma invasion: the impact of phenotypic switching*, P. Gerlee and S. Nelander, to appear in *Volume of the Kepler Prize workshop Heidelberg 2011*. Springer Verlag.
- *Evolution, regulation and disruption of homeostasis and its role in carcinogenesis*, A.R.A. Anderson, D. Basanta, P. Gerlee and K. Rejniak, appears in *Multiscale Cancer Modeling*, edited by T. Deisboeck and G. Stamatakos.

Theses

- *The role of the micro-environment in tumour growth and evolution*, PhD-thesis, University of Dundee, 2008.
- *The genetic coding style of digital organisms*, MSc-thesis, Chalmers University of Technology, 2005.