

Haralampos Hatzikirou

Al Dabagh str,
Parkside Residence A,
Abu Dhabi, UAE

Date of Birth: March, 6th, 1978

Nationality: Greek

Marital status: Married, 1 child

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PROFESSIONAL SUMMARY

- Leader of scientific teams and consortia, using mathematical modelling and machine learning, solving complex biomedical problems resulting in >60 papers.
- Large experience in designing and executing research projects between quantitative scientists and clinicians leading to >3million euros funding.
- Effective and confident science communicator, both oral and written, making complex scientific concepts accessible to audiences of various backgrounds holding >30 invited talks and >20 contributed talks worldwide.

EMPLOYMENT

08.2020-now	Mathematics, Khalifa University (Abu Dhabi, United Arab Emirates) Associate Professor
08.2020-now	ZIH, TU Dresden (Dresden, Germany) Research group leader
11.2015-08.2020	Helmholtz Center for Infection Research (Braunschweig, Germany) Research group leader
02.2013-10.2015	cfAED, TU Dresden (Dresden, Germany) Research group leader
09.2011-01.2013	Helmholtz Center for Infection Research (Braunschweig, Germany) Research Fellow
11.2010-08.2011	Pathology, University of New Mexico (Albuquerque, USA) Postdoctoral Fellow
07.2009-10.2010	Biomedical Informatics, University of Texas (Houston, USA)

Postdoctoral Fellow

- 2007-2009** **Pathology, Carl Gustav Carus University Hospital** (Dresden, Germany)
Research Fellow
- 2004-2007** **ZIH, TU Dresden** (Dresden, Germany)
Research Fellow
- 2003-2004** **Institute of Theoretical Biology, Humboldt University** (Berlin, Germany)
Research and teaching assistant
- 2002-2003** **Fraunhofer I.E.S.E.** (Kaiserslautern, Germany)
Research assistant
- 1997-2001** **Galanis Sport Data** (Thessaloniki, Greece)
Processing, analysis and collection of statistical data in sport events.
- 1997-2001** **Polytechniki S.A.** (Thessaloniki, Greece)
Topographer and civil engineer's assistant.
- 1996-2001** Private teaching of Mathematics and Physics.

EDUCATION

- 2004-2009** **Ph.D in Mathematics**
TU Dresden
“Lattice-gas cellular automata for the analysis of tumor invasion”
Grade: “*Summa cum laude*” (Highest honors)
- 2001-2004** **MSc in Industrial Mathematics-Technomathematik**
TU Kaiserslautern
Master Thesis
“Bifurcation Analysis of a Vocal Fold Model coupled to Resonators”
- 1996-2001** **Diploma in Mathematics**
Aristotle University of Thessaloniki
- 1992-1995** Secondary School, 4th Lyceum of Serres.

EXTENDED PROFESSIONAL VISITS

- 08-12/2016** **Center for Interdisciplinary Research** (Bielefeld, Germany)
Cooperation group organizer

06-07/2012 **Center for Interdisciplinary Research** (Bielefeld, Germany)
Visitor research fellow

03-04/2012 **University of California at Irvine** (Irvine, USA)
Visitor research fellow

SCHOLARSHIPS/PRIZES/DISTINCTIONS

- Performance award for the year 2012, 2017, 2018 (Helmholtz center for Infection Research)
- PhD thesis selected by European Society of Mathematical and Theoretical Biology (ESMTB) committee as one of the best theses of 2009
- BMBF travel award (2009)
- Gottlieb Daimler-Benz Stiftung (2007-2009)
- ESMTB Travel Grants (2007 & 2008)
- Selection for participation in the Lindau Nobel Meeting of Chemistry (2006)
- Marie Curie Research Training Network Stipendium (2004-2006)

PUBLICATIONS

A. PEER-REVIEWED JOURNAL

1. 'Murine Staphylococcus aureus chronic infection is cured by theory-driven therapy' L. A. Papaxenopoulou, G. Zhao, S. Khailaie, K. Katsoulis-Dimitriou, I. Schmitz, E. Medina, **H. Hatzikirou***, M. Meyer-Hermann* (*submitted*)
2. 'Sparse intragraft molecular classifiers for antibody-mediated and T-cell mediated kidney transplant rejection: development, validation and clinical value' J. Callemeyn, J. M. Nava Sedeño, D. Anglicheau, J. H. Bräsen, H. de Loor, A. Deutsch, M. Essig, W. Gwinner, P. Halloran, P. Koshy, D. Kuypers, E. Lerut, P. Marquet, B. Sprangers, A. H. Van Craenenbroeck, **H. Hatzikirou***, M. Naesens* (*submitted*)
3. 'Inferring the effect of interventions on COVID-19 transmission networks' S. Syga, D. David-Rus, Y. Schälte, M. Meyer-Hermann, **H. Hatzikirou**, A. Deutsch, arXiv:2012.03846 (*submitted*)
4. 'A novel averaging principle provides insights in the impact of intratumoral heterogeneity on tumor progression' M. Leocata, J. C. L. Alfonso, N. I. Kavallaris, **H. Hatzikirou**. bioRxiv: 10.1101/584490 (*submitted*)
5. 'Bayesian combination of mechanistic modeling and machine learning (BaM3): improving clinical tumor growth predictions' P. Mascheroni, JCL Alfonso, M. Meyer-Hermann, **H. Hatzikirou**, Nat. Comm. Med., bioRxiv: 10.1101/2020.05.06.080242, **2021** (*accepted*)
6. 'Close to optimal cell sensing ensures the robustness of tissue differentiation process: the avian photoreceptor mosaic case' A. Barua, A. Beygi, **H. Hatzikirou**, Entropy 23: 867, **2021**
7. 'BIO-LGCA: a cellular automaton modelling class for analysing collective cell migration', A. Deutsch, J. M. Nava-Sedeno, S. Syga, **H. Hatzikirou**, PLoS Comp. Biol., 17(6): e1009066 **2021**

8. 'A least microenvironmental uncertainty principle (LEUP) as a generative model of collective cell migration mechanisms' A. Barua, J. M. Nava Sedeno, and **H. Hatzikirou**, *Sc. Rep.* 10: 22371, **2020**
9. 'On the Immunological Consequences of Conventionally Fractionated Radiotherapy' J. C. L. Alfonso, L. A. Papaxenopoulou, P. Mascheroni, M. Meyer-Hermann, **H. Hatzikirou**. *iScience*, 23:3, 100897, **2020**
10. 'Entropy-driven cell decision-making predicts 'fluid-to-solid' transition in multicellular systems' A. Barua, S. Syga, P. Mascheroni, N. Kavallaris, M. Meyer-Hermann, A. Deutsch, **H. Hatzikirou**. *New J. Phys.* 22:123034, **2020**
11. 'Investigating the physical effects in bacterial therapies for avascular tumors', P. Mascheroni, M. Meyer-Hermann, **H. Hatzikirou**. *Front. Microb.* 11:1083, 10.3389/fmicb.2020.01083, **2020**
12. 'Mechanical-control of cell proliferation increases resistance to chemotherapeutic agents' I. Rizzuti, P. Mascheroni, S. Arcucci, Z. Ben-Meriem, A. Prunet, C. Barentin, C. Riviere, H. Delanoe-Ayari, **H. Hatzikirou**, J. Guillermet-Guibert and M. Delarue, *Phys. Rev. Lett.*, 125: 128103, **2020**
13. 'Modeling collective cell motion: are on- and off-lattice models equivalent?' J. Navas-Sedeno, A. Voss-Boehme, **H. Hatzikirou**, A. Deutsch, F. Peruani, *Phil. Trans. Roy. Soc. B*, 37520190378, 10.1098/rstb.2019.0378, **2020**
14. 'A minimal modeling framework of radiation and immune system synergy to assist radiotherapy planning' G. Montaseri, J. C. L. Alfonso, H. Hatzikirou, M. Meyer-Hermann. *J. Theor. Biol.* 486:110099, **2019**
15. 'Plasma phospholipid concentrations and acid sphingomyelinase activity are accurate biomarkers for community-acquired pneumonia', Haroon Arshad, Juan Carlos López Alfonso, Raimo Franke, Katina Michaelis, Leonardo Araujo, Aamna Habib, Yuliya Zboromyrska, Eva Lucke, Emilia Strungaru, Manas K. Akmatov, **H. Hatzikirou**, Michael Meyer-Hermann, Astrid Petersmann, Matthias Nauck, Mark Bronstrup, Ursula Bilitewski, Laurent Abel, Jorg Sievers, Jordi Vila, Thomas Illig, Jens Schreiber, Frank Pessler, *J. Transl. Med.*, 17: 365, **2019**
16. 'On the impact of chemo-mechanically induced phenotypic transitions in gliomas.' P. Mascheroni, J. C. L. Alfonso, M. Kalli, T. Stylianopoulos, M. Meyer-Hermann, **H. Hatzikirou**, *Cancers*, 11(5): 716, **2019**
17. 'Hook length of the bacterial flagellum is controlled to nanometer-scale for optimal motility performance', I. Spöring, V. A. Martinez, C. Hotz, J. Schwarz-Linek, J. M. Nava-Sedeño, K. Grady, T. Vissers, H. M. Singer, M. Rohde, C. Bourquin, **H. Hatzikirou**, W. C. K. Poon, Y. S. Dufour, M. Erhardt, *PLOS Biology*, 16(9): e2006989, **2018**
18. 'Statistical mechanics of cell decision-making: the cell migration force distribution.' **H. Hatzikirou**, *J. Mech. Behav. Mater.*, 20180001, 2191-0243, doi: 10.1515/jmbm-2018-0001, **2018**
19. 'Multidimensional Analysis Integrating Human T-Cell Signatures in Lymphatic Tissues with Sex of Humanized Mice for Prediction of Responses after Dendritic Cell Immunization', V. Volk, A. Reppas, P. Robert, L. M Spinelì, A. Grosshennig, B. Sai Sundarasetty, S. Theobald, A. Schneider, L. Gerasch, S. Klöß, U. Koehl, C. von Kaisenberg, **H. Hatzikirou***, M. Meyer-Hermann* and R. Stripecte*, *Frontiers in Immunology*, doi: 10.3389/fimmu.2017.01709, **2017**

20. ‘Cellular automaton models for time-correlated random walks: derivation and analysis’, J. M. Nava-Sedeno, **H. Hatzikirou**, R. Klages, A. Deutsch, Sc. Reports (Nature publications), doi: 10.1038/s41598-017-17317-x, **2017**
21. ‘The biology and mathematical modelling of glioma invasion: a review’, J. C. L. Alfonso, K. Talkenberger, M. Seifert, B. Klink, A. Hawkins-Daarud, K. R. Swanson, **H. Hatzikirou** and A. Deutsch, *14*: 136, doi: 10.1098/rsif.2017.0490, **2017**
22. ‘Image analysis of immune cell patterns in the human mammary gland during the menstrual cycle refines lymphocytic lobulitis’, N. Schaadt, J. C. L. Alfonso, R. Schoenmeyer, A. Grote, G. Forestier., C. Wemmert, N. Kroenk, M. Stoeckelhuber, H. Kreipe, **H. Hatzikirou**, F. Feuerhake, *Breast Cancer Res. Treat.*, doi:10.1007/s10549-017-4239-z, **2017**
23. ‘The therapeutic potential of bacteria against solid tumors’, **H. Hatzikirou***, J. C. L. Alfonso*, S. Bartels, C. Stern, S. Weis, M. Meyer-Hermann, *Cancer Res*, doi: 0.1158/0008-5472.CAN-16-1621, **2017**
24. ‘Extracting cellular automaton rules from physical Langevin equation models for single and collective cell migration’, J. M. Nava-Sedeno*, **H. Hatzikirou***, F. Peruani, A. Deutsch, *J. Math. Biol.*, doi:10.1007/s00285-017-1106-9, **2017**
25. ‘Why one-size-fits-all vaso-modulatory interventions fail to control glioma invasion: in silico insights’, J. C. L. Alfonso, A. Kohn-Luque, T. Stylianopoulos, F. Feuerhake, A. Deutsch, **H. Hatzikirou**, *Sc. Reports (Nature publications)*, doi:10.1038/srep37283, **2016**
26. ‘In-silico insights on the prognostic potential of immune cell infiltration patterns in the breast lobular epithelium’, J. C. L. Alfonso, N. S. Schaadt, R. Schonmeyer, N. Brieu, G. Forestier, C. Wemmert, F. Feuerhake and **H. Hatzikirou**, *Sc. Reports (Nature publications)*, doi:10.1038/srep33322, **2016**
27. ‘From Immune Cells to Self-Organizing Ultra-Dense Small Cell Networks,’ H. Klessig, D. Öhmann, A. Reppas, **H. Hatzikirou**, M. Abedi, M. Simsek, G. Fettweis, *IEEE Journal on Selected Areas in Communications (JSAC)*, 2(20), **2016**
28. ‘The extrinsic noise effect on lateral inhibition differentiation waves’ A. Reppas, G. Lolas, A. Deutsch, **H. Hatzikirou**, *ACM Trans. Embed. Comp. Syst.* 26(3) 19:1-18, **2016**
29. ‘Stochastic models of tumour development and related mesoscopic equations’, D. Finkelshtein, M. Friesen, **H. Hatzikirou**, Y. Kondratiev, T. Krueger, O. Kutoviy, *Interdisciplinary studies of complex systems*, 7: 5-85, **2015**
30. ‘Therapeutic potential of combinatorial anti-tumor treatments involving immuno- and vaso-modulatory interventions’, **H. Hatzikirou**, J. C. L. Alfonso, S. Muehle, C. Stern, S. Weiss and M. Meyer-Hermann. *J. R. Soc. Interface* 12: 20150439, **2015**
31. ‘A mechanical collective cell model for epithelial contact inhibition’ S. Aland, **H. Hatzikirou**, J. Lowengrub, A. Voigt. *Biophys. J.*, 109 (7): 1347–1357, **2015**
32. ‘In silico tumor control induced via alternating immunostimulating and immunosuppressive phases’ A. Reppas, J. C. L. Alfonso, **H. Hatzikirou**. *Virulence*, doi: 10.1080/21505594.2015.1076614, **2015**
33. ‘An emerging Allee effect is critical for tumor initiation and persistence’, K. Boettger*, **H. Hatzikirou***, A. Voss-Boehme, M. A. Herrero, A. Deutsch. *PLOS Comp. Biol.* 11(9): E1004366, arXiv:1407.3147, **2015**
34. ‘Model-based comparison of cell density-dependent cell migration strategies’, **H. Hatzikirou**, K. Boettger, A. Deutsch, *Math. Mod. Nat. Phen.*, 10(1): 94–107, **2015**
35. ‘Avian photoreceptor patterns represent a disordered hyperuniform solution to a two-dimensional packing problem’, Y. Jiao, T. Lau, **H. Hatzikirou**, M. Meyer-Hermann, J. C. Corbo and S. Torquato, *Physical Review E*, 89:022721, **2014**

36. 'In silico analysis of cell cycle synchronisation effects in radiotherapy of tumour spheroids', H. Kempf, **H. Hatzikirou**, M. Bleicher, and M. Meyer-Hermann, *PLOS Comp. Biol.*, doi: 10.1371/journal.pcbi.1003295, **2013**
37. 'Multiscale dynamic density functional theory of solid tumor growth: Preliminary models', A. Chauviere, **H. Hatzikirou***, Y. Kevrekidis, J. Lowengrub, V. Cristini, *AIP Advances*, 2:011210, **2012**
38. 'Investigation of the Migration/Proliferation Dichotomy and its Impact on Avascular Glioma Invasion', K. Boettger, **H. Hatzikirou**, A. Chauviere, A. Deutsch, *Math. Mod. Nat. Phen.*, doi: 10.1051/mmnp/20127106, **2012**
39. 'Identifications of the intrinsic mechanisms for glioma tumor invasion', M. Tektonidis, **H. Hatzikirou***, A. Chauviere, M. Simon, C. Schaller and A. Deutsch, *J. Theor. Biol.*, 287:131–147, **2011**
40. 'Integrative physical oncology', **H. Hatzikirou***, A. Chauviere, A. Bauer, P. Macklin, A. Leier, T. Marquez, M. Lewis, E. Beamer, V. Cristini. *WIREs Systems Biology and Medicine*, doi:10.1002/wsbm.158, **2011**
41. 'Density-dependent quiescence in glioma invasion: instability in a simple reaction-diffusion model for the migration/proliferation dichotomy', K. Pham, A. Chauviere, **H. Hatzikirou**, X. Lia, H. Byrne, V. Cristini, J. Lowengrub, *J. Biol. Dyn.*, doi: 10.1080/17513758.2011.590610, **2011**
42. 'Lattice-gas cellular automaton and lattice-Boltzmann models for biology', B. Chopard, R. Ouared, A. Deutsch, **H. Hatzikirou** and D. Wolf-Gladrow, *Acta Biotheor.*, doi: 10.1007/s10441-010-9118-5, **2010**
43. 'How math oncology can help in the war on cancer', **H. Hatzikirou**, A. Chauviere, A. Thompson, V. Cristini, *Current Breast Cancer Reports*, doi: 10.1007/s12609-010-0020-6, **2010**
44. "Go or Grow": the key to the emergence of invasion in tumor progression?', **H. Hatzikirou**, D. Basanta, M. Simon, C. Schaller and A. Deutsch, *Math. Med. Biol.*, doi:10.1093/imammb/dqq011, **2010**
45. 'Prediction of traveling front behavior in a lattice-gas cellular automaton model for tumor invasion', H. Hatzikirou, L. Bruschi, C. Schaller, M. Simon and A. Deutsch, *Comp. Math. Appl.*, 59: 2326-2339, **2010**
46. 'A game theoretical study of evolution of invasion in tumors', D. Basanta, **H. Hatzikirou** and A. Deutsch, *Eur. Phys. Journal B.* 63: 393–397, **2008**
47. 'An evolutionary game theory perspective elucidates the role of glycolysis in tumor invasion', D. Basanta, M. Simon, **H. Hatzikirou**, and A. Deutsch, *Cell Proliferation*, 41:980-987, **2008**
48. 'Cellular automata as microscopic models of cell migration in heterogeneous environments', **H. Hatzikirou**, A. Deutsch, *Curr. Top. Dev. Biol.* 81: 401-34, **2007**
49. 'Multiple discontinuities in nonhuman vocal tracts - A reply', T. Riede, E. Bronson, **H. Hatzikirou**, K. Zuberbuehler, *Journal of Human Evolution*, 50(2): 222-5, **2006**
50. 'Mathematical modelling of glioblastoma tumour development: a review', **H. Hatzikirou**, A. Deutsch, C. Schaller, M. Simon, and K. Swanson, *Math. Mod. Meth. Appl. Sc.*, 15(11): 1779-1794, **2005**
51. 'Voice instabilities due to source-tract interactions.' **H. Hatzikirou**, T. Fitch, H. Herzel, *Acta Acustica*, 92(3): 468, **2005**

¹ Co-first or co-correspondance authorship

52. 'Vocal production mechanisms in a non-human primate: Morphological data and a model.', T. Riede, E. Bronson, **H. Hatzikirou**, K. Zuberbuehler, *Journal of Human Evolution*, 48(1):85-96, **2005**

B. PEER-REVIEWED PROCEEDINGS

1. 'Detecting Emergent Phenomena in Cellular Automata using Temporal Description Logics', S. Delivorias, **H. Hatzikirou**, R. Peñaloza, D. Walther, *Lecture Notes in Computer Science*, 8751: 57-366, **2014**
2. 'Encoding of positional information and maximum capacity of parallel coupled channels', E. Jorswieck, A. Reppas, **H. Hatzikirou**, *IEEE Information Theory and Applications Workshop (ITA)*, p. 1-8, doi:10.1109/ITA.2014.6804230, **2014**
3. 'Analysis of Lattice Gas Models of Tumour Growth by Means of Fractal Scaling', S. de Franciscis, **H. Hatzikirou**, A. Deutsch, *Acta Physica Polonica B*, 4(2): 167-182, **2011**
4. 'Multiscale modeling in complex biological systems: the tumor growth paradigm', **H. Hatzikirou**, G. Lolas, D. Dragatogiannis, C. Charitidis, I. Karsonakis, G. Kordas, *7-th GRACM International congress on Computational Mechanics*, **2011**
5. 'From cellular rules to an effective macroscopic mean-field description', **H. Hatzikirou**, L. Bruschi and A. Deutsch, *Acta Physica Polonica B Proceedings Supplement*, 3(2): 399-416, **2010**
6. 'Voice instabilities due to source-tract interactions', **H. Hatzikirou**, T. Fitch, H. Herzel, *Voice Physiology and Biomechanics -Modeling Complexity*, 63–70, Marseille, **2004**

C. BOOK CHAPTERS

1. 'Lattice-gas cellular automaton models for biology', A. Deutsch, **H. Hatzikirou**, C. Mente, *Springer Encyclopedia of Systems Biology*, **2012**
2. 'The effect of vascularization on glioma growth', **H. Hatzikirou**, A. Chauviere et al. *Tumor Vasculature: Molecular, Cellular, and Tissue Level Aspects and Implications*, T. Jackson (Ed), Springer, 237-260 **2011**
3. 'Lattice-gas cellular automaton modeling of emergent behavior in interacting cell populations', **H. Hatzikirou** and A. Deutsch *Simulating Complex Systems by Cellular Automata*, Birkhaeuser, **2009**
4. 'Cellular automata models of tumor invasion', **H. Hatzikirou**, G. Breier and A. Deutsch, *Encyclopedia of Complexity and Systems Science*, 913-922, **2009**

D. BOOKS/ MONOGRAPHS/THESIS

1. 'Cellular automata for the analysis of cancer invasion: Mathematics against cancer', **H. Hatzikirou**, Suedwestdeutscher Verlag fuer Hochschulschriften, ISBN: 3838117697, **2010**

E. PATENTS

1. Method for connecting and / or disconnecting network elements in a mobile network. **H. Hatzikirou**, H. Klessig, A. Reppas, M. Abedi, D. Oehman, M. Simsek, DE102015106715 B3, **2016**

FUNDING/ GRANTS

On-going/accepted

- **FSU grant** (2021-2023): Development of novel methods combining mechanistic modelling and machine learning for biomedical problems (880,000AED) [Role: Principle Investigator]
- **ERACoSysMed** (2020-2023): Modelling cell plasticity at the invasive Edge to Diminish Glioblastoma Early relapse risk (180,000€) [Role: Principle Investigator]
- **Life? Volkswagenstiftung** (2020-2025): Deciphering the principles of cell decision-making in multicellular systems: The Least microEnvironmental Uncertainty Principle (LEUP) (1,500,000€/550,700€ own part) [Role: Coordinator/ Principle Investigator]

Past

- **Helmholtz Initiative on Information & Data Science** (2017-2021): Reduced complexity models (300,000€) [Role: Co-Principle Investigator]
- **BMBF** (2018-2020): Standardizing the exchange of multicellular models in computational systems medicine, 01ZX1707C (45,000€) [Role: Principle Investigator]
- **BMBF** (2017-2019): Modular image analysis platform to integrate microscopic data from biopsies into mathematical models of immune cell - target interaction, 01ZX1710B (136,111€) [Role: Principle Investigator]
- **ERACoSysMed** (2016-2019): Systems medicine approach to minimize macrophage-associated interstitial fibrosis and tubular atrophy in renal allograft rejection, 031L0085B (252,066€) [Role: Principle Investigator]
- **BMBF** (2016-2018): Systems Immunology and Image Mining in Translational Tissue Biomarker Research-Extension, 01ZX1308D (206,749€) [Role: Principle Investigator]
- **ZIF cooperation group** (9/2016-12/2016): Multiscale modeling of tumor initiation, growth and progression: From gene regulation to evolutionary dynamics (100,000€) [Role: Co-organizer]
- **Ministry of Economy and Competitiveness (Spain)**: Modeling and analysis of emergent properties in biological populations, MTM2014-53156-P (11,000€) [Role: Principle Investigator]
- **BMBF** (2013-2016): Systems Immunology and Image Mining in Translational Tissue Biomarker Research, 01ZX1308D (233.992€) [Role: Principle Investigator]
- **DAAD** (2014-2015): ITT Exchange of Faculty, A/14/04410 (10,000€) [Role: Principle Investigator]

TEACHING

- Mathematics, Khalifa University, UAE
2021 Lecturer in *Mathematics in Biology (MATH432)*
- Mathematics, Khalifa University, UAE
2021 Lecturer in *Applied Statistics (MATH495)*

- Mathematics, Khalifa University, UAE
2021 Lecturer in *Linear Algebra (MATH204)*
- Mathematics, Khalifa University, UAE
2020-2021 Lecturer in *Linear Algebra (MATH204)*
- Bioengineering/Mathematics, Khalifa University, UAE
2020-2021 Lecturer in *Multivariate data analysis (BME603)*
- Life sciences, TU Braunschweig, Germany
2017-2018 Co-lecturer in *Introduction to mathematical modeling in biology and medicine*
- Mathematics, TU Dresden, Germany
2014-2015 Seminar series in *Simple models of biological complexity*
- Mathematics, TU Dresden, Germany
2013-2014 Seminar series in *Computational Systems Biology of Cancer*
- Life Sciences, TU Braunschweig, Germany
2012 Seminar series in *Introduction to theoretical biology*
- School of Health Information Science, University of Texas - Houston, USA
2009 -
2010 Co-lecturer in *Numerical Methods for Health Information Science*

Co-lecturer in *Mathematical Methods for Health Informatics, Engineers and Biomedicine*
- Biophysics, Humboldt University, Berlin, Germany
2003-2004 Teaching Assistant in *Nonlinear dynamics and time series analysis*

THESES SUPERVISION/COMITTEE

- **Marco Tektonidis:** ‘Parameter optimization of a cellular automaton model of cancer growth based on medical MRI data’, MSc Thesis, TU Berlin, 2008 (Scientific advisor)
- **Katrin Boettger:** ‘Analysis of invasive behavior in a lattice-gas cellular automaton model of tumor growth’ MSc and PhD Thesis, TU Dresden, 2010-2015 (Scientific advisor)
- **Shabnam Moobed:** ‘Lattice-gas cellular automata model of lineage dynamics and feedback control’, PhD Thesis, University of California Irvine, 2012 (Scientific advisor)
- **Florian Brennecke:** ‘Pattern formation of avian photoreceptors’, Internship, 2012 (supervisor)
- **Jaber Dehghany:** ‘Mathematical Modeling of Insulin-Secretory Granules’ Dynamics in Pancreatic β - cells’, Goethe Univ. Frankfurt, 2012 (committee member)
- **Steffen Muehle:** ‘Modeling and analyzing the immune system's impact on vascularized tumor growth’, Bachelor Thesis, TU Braunschweig, 2013 (co-supervisor)
- **Josue Manik Nava Sedeno:** PhD Thesis, TU Dresden, 2015 (co-supervisor)
- **Fotios Bekris:** ‘Re-engineering tumor microenvironment to improve therapy’, Univ. of Cyprus, 2016 (committee member)
- **George Batagiannis:** ‘Extended mean-field approximations of cellular automata’, MSc thesis, TU Dresden, 2017 (co-supervisor)

- **Lito Papaxenopoulou**, Helmholtz Centre for Infection Research, 2017 (Thesis supervisor)
- **Arnab Barua**, Helmholtz Centre for Infection Research, 2018 (Thesis supervisor)

EDITORIAL BOARD MEMBERSHIP

- PLoS One (Biophysics)
- Frontiers in Applied Mathematics and Statistics (Mathematical Biology)
- Mathematical Biosciences and Engineering
- Biosystems
- Frontiers in Microbiology

REFeree EXPERIENCE

Nature Communications, Cancer Research, Scientific Reports, Physical Review Letters, Physical Review E, PLOS Computational Biology, PLOS One, Journal of Theoretical Biology, Physica A, Physics Letters A, European Physical Journal E, Mathematical Biosciences, Mathematics in Medicine and Biology, Canadian Applied Mathematics Quarterly, Computational Biology and Bioinformatics, Mathematical Biosciences and Engineering, Biosciences, JCO of Clinical Cancer Informatics, Neuroimage Clinical, Bulletin of Mathematical Biology etc

SKILLS

Computing

Very good command of **Programming languages**: C++, Python, Visual Basic, Fortran, Basic.

Knowledge of **HTML, XML**

Databases: Microsoft Access (work experience), SQL

Extensive use and excellent command of

Mathematical Packages: MATLAB, Maple, XPPAUT

Statistical Packages: SPSS, R

Operating Systems: Windows, Linux, Mac OS

CAD Programs: AutoCAD 2000, R12

Word Processing Applications: Microsoft Word, Latex

Languages

-Excellent knowledge of written and conversational **English**

-Very good knowledge of written and conversational **German**

-Basic knowledge of **French**

-**Greek** as a mother language

ACTIVITIES/INTERESTS

Social Founder and president of the Greek student and academic club in Dresden (2005)

Sport Leader of the Mathematics Department basketball team during 1997- 2000, Member of school basketball teams 1992-1995, Weight training

Other Philosophy, Political and historical analysis, Music

PRESENTATIONS/ABSTRACTS

Invited Talks/ Seminars

- Alfred-Wegener-Institute, Bremenhaven, Germany, 03/2008
- ZIH TU Dresden, Dresden, Germany, 12/2009
- AIMS 2010, ‘Mathematical Cancer Modeling’, Dresden, Germany, 05/2010
- DSPDEs 2010, ‘Game Theory and Optimization in Cancer Therapy and Social Issues’, Barcelona, Spain, 06/2010
- Dept. Chemical Engineering, National Technical University of Athens, Greece, 12/2010
- Moffit Cancer Center, Tampa, FL, USA, 06/2011
- Helmholtz Institute for Infectious Diseases, Braunschweig, Germany, 06/2011
- European Conference of Mathematical and Theoretical Biology (ECMTB) 2011, Cracow, Poland, 06/2011
- Dept. of Mathematics, University of Bielefeld, Germany, 12/2011
- Dept. of Neurology, Goethe-University, Frankfurt, Germany, 05/2012
- „Stochastic Dynamics in Action “, ZIF Bielefeld, Germany, 05/2012
- Dept. Mathematics, University of Nice-Sophia Antipolis, France, 07/2012
- „Core12“, Mexico city, Mexico, 11/2012
- „Workshop on brain tumors: mechanisms and mathematical models “, CRTD Dresden, Germany, 12/2012
- „Workshop on Mathematical Models for Cancer Cell Migration “, Oberwolfach, Germany, 4/2014
- „International Workshop on Numerical Methods and Emerging Computational Challenges in Mathematical Biology”, Dundee, UK, 5/2014
- “Complex Systems of Interacting Particles”, ZIF Bielefeld, Germany, 5/2014
- Dept. of Material Sciences, University of Crete, 6/2014
- Dept. of Mathematics, AUTH, Thessaloniki, Greece, 4/2015
- „Micro and Macro Systems in Life Sciences “, Bedlewo, Poland 6/2015
- „ICTM15: International Workshop on Intracranial Tumors Modeling“, Bordeaux, France, 9/2015
- „Fourth Conference on Particle-Based Methods (PARTICLES 2015) “, Barcelona, Spain, 9/2015
- Dept. of Engineering, AUTH, Thessaloniki, Greece, 5/2016

- “Stochastic analysis day”, Univ. of Pisa, Italy, 3/2017
- “International Symposium for Tissue Phenomics”, Definiens, Amsterdam, Holland, 2017
- “Stochasticity and Control in the Dynamics and Diversity of Immune Repertoires”, IIAS, Hebrew University, Jerusalem, Israel, 2017
- “Quantitative Approaches to Tissue Biology” Weizmann Institute, Rehovot, Israel, 2017
- ‘Multiscale modelling of collective migration’, ZIF, Bielefeld, Germany, 2017
- Seminar at the Dept. of Neuromedicine, Loma Linda University, Los Angeles, 2018
- Enlight-ten satellite meeting, European Conference of Immunology, Amsterdam, 2018
- “Plasticity and epigenetics in cancer evolution” Institute of Mathematics and its Applications (IMA), 2021.

Workshop/Minisymposia organization

- *Minisymposium*: „Modeling and analysis of tumor invasion I&II “, ECMTB, Cracow, Poland 06/2011
- *Minisymposium*: „Multiscale modeling of biological systems: from physical tools to applications in cancer modeling I&II “, ECMTB, Cracow, Poland 06/2011
- *Minisymposium*: „Cellular automata of Cancer Growth and Invasion “, ACRI, Santorini, Greece 09/2012
- *Minisymposium*: „Mathematical Modelling of Retinal Plasticity and Vascularization “, ECMTB, Gothenburg, Sweden 06/2014
- *Minisymposium*: „Recent advances in the mathematical modeling of glioma progression and invasion “, ECMTB, Gothenburg, Sweden 06/2014
- *Workshop*: “Multiscale Modelling of Tumour Evolution: Data, Validation and Uncertainty”, Bielefeld, Germany 12/2016
- *Workshop*: “Multiscale modeling of tumor initiation, growth and progression: From gene regulation to evolutionary dynamics”, Bielefeld, Germany 09/2016

Contributed Conferences/Workshops

- Conference on ‘Voice Physiology and Biomechanics: Modeling Complexity’, Marseille, France, 07/ 2004
- European Conference on Mathematical and Theoretical Biology ECMTB05, Dresden, 07/2005
- 1st Summer school of the Marie Curie RTN, Tenerife, Spain, 09/2005
- Workshop of the Marie Curie RTN on ‘Focus on mathematical modeling and analysis of tumor growth and therapy’, Szczcyrk, Poland, 10/2005
- Conference of Greek-German research society, Berlin, Germany, 10/2005
- 7th International Conference on Cooperative Control and Optimization, Florida, USA, 02/2006
- 2nd Summer school of the Marie Curie RTN, Chania, Greece, 07/2006
- European Conference on Complex Systems ECCS07, Dresden, Germany, 10/2007

- XXIII IUPAP International Conference on Statistical Physics, Genova, Italy, 07/2007
- Conference ‘Automata 2007’, Toronto, Canada, 08/2007
- 9th International EMBL PhD Student Symposium, Heidelberg, 10/2008
- Conference on Modeling and Simulation of Cancer Growth and Therapy ‘CancerSim2008’, Torino, Italy, 05/ 2008
- International Conference on Mesoscopic Methods in Engineering and Science ICMMES08, Amsterdam, Holland, 06/2008
- European Conference on Mathematical and Theoretical Biology ECMTB08, Edinburgh, Scotland, 07/2008
- Conference of Society of Mathematical Biology SMB08, Toronto, Canada, 08/2008
- ICBC Summer School on Integrative Cancer Biology, Toronto, Canada, 08/2008
- Transatlantic summer school ‘Cancer Systems Biology’, Rostock, Germany, 06/2009
- European Conference of Mathematical Biology, Lisbon, Portugal, 07/2018
- Mathematical Biology on the Mediterranean Conference, Samos, Greece, 09/2019

REFEREES

Upon request