

Publikationen

Published/Accepted for Publication:

- M. Streller, S. Michlíková, W. Cieciorka, K. Lönnecke, L. A. Kunz-Schughart, S. Lange and A. Voss-Böhme. Image segmentation of treated and untreated tumor spheroids by Fully Convolutional Networks. GigaScience, Volume 14 (2025) doi.org/10.1093/gigascience/giaf027
- S. Lange, J. Schmied, P. William, A. Voss-Böhme. Minimal cellular automaton model with heterogeneous cell sizes predicts epithelial colony growth. Journal of Theoretical Biology 2024, 111882 [doi:10.1016/j.jtbi.2024.111882](https://doi.org/10.1016/j.jtbi.2024.111882)
- Franke F, Michlíková S, Aland S, Kunz-Schughart LA, Voss-Böhme A, Lange S. Efficient Radial-Shell Model for 3D Tumor Spheroid Dynamics with Radiotherapy. Cancers 2023; 15(23):5645 [doi:10.3390/cancers15235645](https://doi.org/10.3390/cancers15235645)
- Josué Manik Nava-Sedeño, Haralampos Hatzikirou, Anja Voß-Böhme, Lutz Brusch, Andreas Deutsch, Fernando Peruani. Vectorial active matter on the lattice: polar condensates and nematic filaments. New Journal of Physics 2023; 25(12): 1367-2630 [doi: 10.1088/1367-2630/ad1498](https://doi.org/10.1088/1367-2630/ad1498)
- S. Lange, R. Mogwitz, D. Hünniger, A. Voss-Böhme. Modeling age-specific incidence of colon cancer via niche competition. PLoS Comput Biol 18(8): e1010403 (2022) [doi: 10.1371/journal.pcbi.1010403](https://doi.org/10.1371/journal.pcbi.1010403)
- F. Franke, S. Aland, H.-J. Böhme, A. Voss-Böhme, S. Lange. Is cell segregation like oil and water: asymptotic versus transitory regime. PLoS computational biology, 18 (9): 1010460 (2022) [doi: 10.1371/journal.pcbi.1010460](https://doi.org/10.1371/journal.pcbi.1010460)
- F. M. Schwarz, I. Schniewind, M. J. Besso, S. Lange, A. Linge, S. G. Patil, S. Loeck, D. Klusa, A. Dietrich, A. Voss-Boehme, A. Nowrouzi, M. Krause, A. Dubrovska, I. Kurth, C. Peitzsch. Plasticity within aldehyde dehydrogenase-positive cells determines prostate cancer radiosensitivity. Mol Cancer Res Feb 8 (2022) [doi: 10.1158/1541-7786.MCR-21-0806](https://doi.org/10.1158/1541-7786.MCR-21-0806)
- P. Rossbach, H.-J. Böhme, S. Lange, A. Voss-Böhme. Model-Based Prediction of an Effective Adhesion Parameter Guiding Multi-Type Cell Segregation. Entropy 23 (11), 1378 (2021) [doi:10.3390/e23111378](https://doi.org/10.3390/e23111378)
- J. M. Nava-Sedeno, A. Voß-Böhme, H. Hatzikirou, A. Deutsch and F. Peruani. Modeling collective cell motion: are on- and off-lattice models equivalent? Phil. Trans. R. Soc. B, 375: 20190378 (2020) [doi:10.1098/rstb.2019.0378](https://doi.org/10.1098/rstb.2019.0378)
- A. Dirkse, A. Golebiewska, T. Buder, P. V. Nazarov, A. Muller, S. Poovathingal, N. H. C. Brons, S. Leite, N. Sauvageot, D. Sarkisjan, M. Seyfrid, S. Fritah, D. Stieber, A. Michelucci, F. Hertel, C. Herold-Mende, F. o Azuaje, A. Skupin, R. Bjerkvig, A. Deutsch, A. Voss-Böhme and S. P. Niclou. Stem cell-associated heterogeneity in Glioblastoma results from intrinsic tumor plasticity shaped by the microenvironment. Nature Communications 10, Article number: 1787 (2019) [doi:10.1038/s41467-019-09853-z](https://doi.org/10.1038/s41467-019-09853-z)
- T. Buder, A. Deutsch, B. Klink, A. Voss-Böhme. Patterns of Tumor Progression Predict Small and Tissue-Specific Tumor-Originating Niches. Frontiers in Oncology. 8:668 (2019) [doi:10.3389/fonc.2018.00668](https://doi.org/10.3389/fonc.2018.00668)
- K. Hoffmann, A. Voss-Böhme, J. C. Rink, L. Brusch. A Dynamically Diluted Alignment Model Reveals the Impact of Cell Turnover on the Plasticity of Tissue Polarity

Patterns. Journal of the Royal Society Interface 14 20170466
(2017) [doi:10.1098/rsif.2017.0466 \(preprint\)](https://doi.org/10.1098/rsif.2017.0466)

- K. Talkenberger, E. Ada Cavalcanti-Adamada, A. Voss-Böhme, A. Deutsch. Amoeboid-mesenchymal migration plasticity promotes invasion only in complex heterogeneous microenvironments. Scientific Reports 7: Article number: 9237 (2017) [doi:10.1038/s41598-017-09300-3](https://doi.org/10.1038/s41598-017-09300-3)
- D. Reher, B. Klink, A. Deutsch, A. Voss-Böhme. Cell adhesion heterogeneity reinforces tumour cell dissemination: novel insights from a mathematical model. Biology Direct 12:18 (2017) [doi: 10.1186/s13062-017-0188-z](https://doi.org/10.1186/s13062-017-0188-z)
- T. Buder, A. Deutsch, M. Seifert, A. Voss-Böhme. CellTrans: An R package to quantify stochastic cell state transitions. Bioinformatics and Biology Insights 11, 1-14 (2017) [doi: 10.1177/1177932217712241](https://doi.org/10.1177/1177932217712241)
- R. Lehmann, A. Voss-Böhme. On the statistical power of Baarda's outlier test and some alternative. Journal of Geodetic Science 7 (1), p. 68-78 (2017) doi.org/10.1515/jogs-2017-0008
- T. Buder, A. Deutsch, B. Klink, A. Voss-Böhme. Model-Based Evaluation of Spontaneous Tumor Regression in Pilocytic Astrocytoma. PLoS Computational Biology 11(12): e1004662 (2015) [doi:10.1371/journal.pcbi.1004662](https://doi.org/10.1371/journal.pcbi.1004662)
- K. Böttger, H. Hatzikirou, A. Voss-Böhme, E. Ada Cavalcanti-Adam, M. A. Herrero, A. Deutsch. An Emerging Allee effect is critical for tumor initiation and persistence. PLOS Computational Biology 11(9):E1004366 (2015) [doi:10.1371/journal.pcbi.1004366](https://doi.org/10.1371/journal.pcbi.1004366)
- C. Mente, A. Voss-Böhme, A. Deutsch. Analysis of individual cell trajectories in lattice-gas cellular automaton models for migrating cell populations. Bulletin of Mathematical Biology 77 (4), pp 660-697 (2015) [doi:10.1007/s11538-015-0079-3](https://doi.org/10.1007/s11538-015-0079-3)
- N. Hohmann, W. Weiwei, U. Dahmen, O. Dirsch, A. Deutsch, A. Voss-Böhme. How does a single cell know when the liver has reached its correct size? PLoS ONE 9(4): e93207 (2014) [doi: 10.1371/journal.pone.0093207](https://doi.org/10.1371/journal.pone.0093207)
- N. Hohmann, A. Voss-Böhme. The epidemiological consequences of leprosy-tuberculosis coinfection. Mathematical Biosciences 241, pp. 225-237 (2013) [doi: 10.1016/j.mbs.2012.11.008](https://doi.org/10.1016/j.mbs.2012.11.008)
- A. Voss-Böhme. Multi-Scale Modeling in Morphogenesis: A Critical Analysis of the Cellular Potts Model. PLoS ONE 7(9): e42852 (2012) [doi:10.1371/journal.pone.0042852](https://doi.org/10.1371/journal.pone.0042852)
- A. Voss-Böhme. On the core property of the cylinder functions class in the construction of interacting particle systems. Kybernetika, 47 (6), 944-054 (2011)
- A. Voss-Böhme, W. Schenk, A.-K. Köllner. On the equivalence between Liggett duality of Markov processes and the duality relation between their generators. Markov Processes and Related Fields, 17(3), 315-346 (2011) (pdf)
- F. Peruani, A. Deutsch, T. Klauß, A. Voss-Böhme. Traffic jams, gliders and band in the quest for collective motion of self-propelled particles. Physical Review Letters, 106, 128101 (2011) [doi:10.1103/PhysRevLett.106.128101](https://doi.org/10.1103/PhysRevLett.106.128101)
- A. Voss-Böhme, A. Deutsch. The cellular basis of cell sorting kinetics. Journal of Theoretical Biology, 263 (4), 419-436 (2010) [doi:10.1016/j.jtbi.2009.12.011](https://doi.org/10.1016/j.jtbi.2009.12.011)
- A. Voss-Böhme. Gibbsian characterization for the reversible measures of interacting particle systems. Markov Processes and Related Fields 15(4), 441-476 (2009) (pdf)
- T. Klauß, A. Voss-Böhme. Modelling and Simulation by Stochastic Interacting Particle Systems. Mathematical Modelling of Biological Systems, vol. II, p. 353-367 (2008) [doi:10.1007/978-0-8176-4556-4_31](https://doi.org/10.1007/978-0-8176-4556-4_31)
- A. Voss-Böhme. Asymptotic mass distribution speed for the one-dimensional heat equation with constant drift and stationary potential. Stochastic Processes and their Applications 106, 167-184 (2003) [doi:10.1016/S0304-4149\(03\)00047-4](https://doi.org/10.1016/S0304-4149(03)00047-4)
- A. Voss-Böhme. Asymptotic Mass Distribution for the Heat Equation with Constant Drift and Random Potential. Dissertation, Technische Universität Dresden, 1-97 (2001)

Buchkapitel:

- A. Voss-Böhme. [Cellular Potts Models for Interacting Cell Populations: Mathematical Foundation, Challenges, and Future Prospects](#). In: Louis PY., Nardi F. (eds) [Probabilistic Cellular Automata](#). Theory, Applications and Future Perspectives, Springer, (2018), ISBN 978-3-319-65556-7
- A. Voss-Böhme, W. de Back, J. Starruß. Cellular Potts Model. In: Dubitzky et al. (eds.), [Encyclopedia of Systems Biology](#), Springer (2013) ([preprint](#))
- A. Voss-Böhme, A. Deutsch. Interacting Cell Systems. In: Dubitzky et al. (eds.), [Encyclopedia of Systems Biology](#), Springer (2013) ([preprint](#))
- A. Voss-Böhme, Differential Adhesion Hypothesis. In: Dubitzky et al. (eds.), [Encyclopedia of Systems Biology](#), Springer (2013) ([preprint](#))
- A. Voss-Böhme, Metropolis Algorithm. In: Dubitzky et al. (eds.), [Encyclopedia of Systems Biology](#), Springer (2013) ([preprint](#))