List of Publications

Computational Systems Biology and Bioinformatics

Zoller, H., Jyoti, J. Castell, W. and **Hütt, M.-Th.** (2025) Leveraging agent-based modeling and co-occurrence data to validate a generalized metabolic model of species interaction in the human gut microbiome. Mol. Sys. Biol., *submitted*.

Jyoti, J. and **Hütt, M.-Th.** (2025). Evaluating changes in attractor sets under small network perturbations to infer reliable microbial interaction networks from abundance patterns. Bioinformatics, 41(4), btaf095.

Salehzadeh-Yazdi, A. and **Hütt, M.-Th.** (2025). Assessing the impact of sampling bias on node centralities in synthetic and biological networks. npj Systems Biology and Applications, 11(1), 47.

Mendler, I. H., Drossel, B. and **Hütt, M.-Th.** (2024). Microbiome abundance patterns as attractors and the implications for the inference of microbial interaction networks. Physica A, 639, 129658.

Kosmidis, K. and **Hütt, M.-Th.** (2023). DNA visibility graphs. Physica A, 626, 129043.

Rumiantsau, D., Lesne, A. and **Hütt, M.-Th.** (2023). Predicting attractors from spectral properties of stylized gene regulatory networks. Physical Review E, 108(1), 014402.

Nyczka, P., Falk, J. and **Hütt, M.-Th.** (2022) Network location and clustering of genetic mutations determine chronicity in a stylized model of genetic diseases. Scientific Reports 12, 19906.

Jablonski, K.P., Carron, L., Mozziconacci, J., Forné, T., **Hütt, M.-Th.** and Lesne, A. (2022) Contribution of 3D genome topological domains to genetic risk of cancers: a genome-wide computational study. Human Genomics 16(1), 1–15.

Kumar, S., D'Souza, R. N., Corno, M., Ullrich, M. S., Kuhnert, N., and **Hütt, M.-Th.** (2022). Cocoa bean fingerprinting via correlation networks. npj Science of Food 6(1), 1–9.

Moreno-Zambrano, M., Ullrich, M. S. and **Hütt, M.-Th.** (2022). Exploring cocoa bean fermentation mechanisms by kinetic modelling. Royal Society Open Science 9, 210274.

Cakir, E., Lesne, A. and **Hütt, M.-Th.** (2021) The economy of chromosomal distances in bacterial gene regulation. npj Systems Biology and Applications 7(1), 1–9.

Kosmidis, K. and **Hütt, M.-Th.** (2021) A minimal model for gene expression dynamics of bacterial toxin-antitoxin systems. Scientific Reports 11(1), 1–12.

Kumar, S., D'Souza, R. N., Behrends, B., Corno, M., Ullrich, M. S., Kuhnert, N., and **Hütt, M.-Th.** (2021). Cocoa origin classifiability through LC-MS data: A statistical approach for large and long-term datasets. Food Research International, 140, 109983.

Nyczka, P. and **Hütt, M.-Th.** (2020) A generative network model of transcriptome patterns in disease cohorts with tunable signal strength. Phys. Rev. Research 2, 033130.

Kosmidis, K., Jablonski, K.P., Muskhelishvili, G. and **Hütt, M.-Th.** (2020) Chromosomal origin of replication coordinates logically distinct types of bacterial genetic regulation. npj Systems Biology and Applications 6, 1-9.

Grimbs, A., Klosik, D.F., Bornholdt, S. and **Hütt, M.-Th.** (2019). A system-wide network reconstruction of gene regulation and metabolism in *Escherichia coli*. PLoS Computational Biology, 15, e1006962.

Kosmidis, K. and **Hütt, M.-Th.** (2019) The *E. coli* transcriptional regulatory network and its spatial embedding. Eur. Phys. J. E42, 30.

Moreno-Zambrano, M., Grimbs, S., Ullrich, M. S., and **Hütt, M.-Th.** (2018). A mathematical model of cocoa bean fermentation. Royal Society Open Science 5, 180964.

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Jablonski, K.P., Fretter, C., Carron, L., Forné, T., **Hütt, M.-Th.** and Lesne, A. (2017) Genome supranucleosomal organization and genetic susceptibility to diseases. AIP Conference Proceedings 1882, 020027.

Claussen, J.C., Skiecevicene, J., Wang, J., Rausch, P., Karlsen, T.H., Lieb, W., Baines, J., Franke, A. and **Hütt, M.-Th.** (2017) Boolean analysis reveals systematic interactions among low-abundance species in the human gut microbiome. PLoS Computational Biology 13, e1005361.

Knecht, C., Fretter, C., Rosenstiel, P., Krawczak, M. and **Hütt, M.-Th.** (2016) Distinct metabolic network states manifest in the gene expression profiles of pediatric inflammatory bowel disease patients and controls. Scientific Reports 6, 32584.

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Interdisciplinary Research

Haj Ali, S., Tiwari, S., **Hütt, M.-Th.**, Wainwright, J. and Turnbull-Lloyd, L. (2025) Modelling soil erosion connectivity using a sandpile framework. Communications Earth & Environment, *under review*.

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Contributions to Experimental Investigations in Biology

Dinkel, V., **Hütt, M.-Th.**, Herzschuh, U., Buchwald, S., Nürnberg, D. and Stoof-Leichsenring, K. (2025) Climate-driven functional shifts in marine food webs from sedaDNA and network analysis. Communications Earth & Environment, *submitted*

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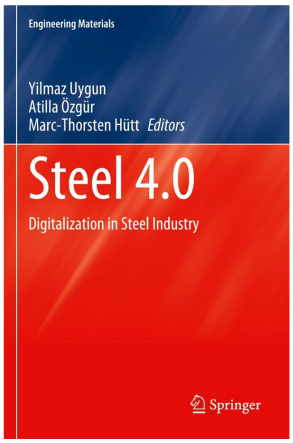

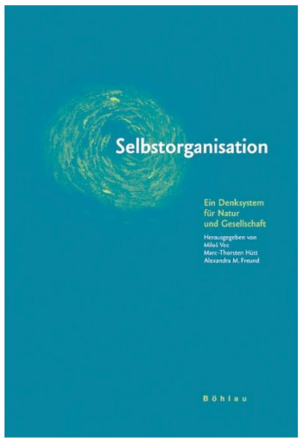

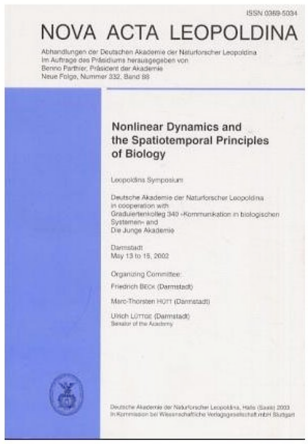

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