

Wim Hordijk, Ph.D.

Publications

Journals and proceedings

- 61.** W. Hordijk, M. Steel and P. Dittrich. Autocatalytic sets and chemical organizations: Modeling self-sustaining reaction networks at the origin of life. *New Journal of Physics* 20:015011, 2018.
- 60.** W. Hordijk. Autocatalytic confusion clarified. *Journal of Theoretical Biology* 435:22–28, 2017.
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- 54.** W. Hordijk and M. Steel. Autocatalytic sets in polymer networks with variable catalysis distributions. *Journal of Mathematical Chemistry*, 54(10):1997–2021, 2016.
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- 48.** F. L. Sousa, W. Hordijk, M. Steel and W. F. Martin. Autocatalytic sets in *E. coli* metabolism. *Journal of Systems Chemistry* 6:4, 2015.
- 47.** W. Hordijk and M. Steel. Autocatalytic sets and boundaries. *Journal of Systems Chemistry* 6:1, 2015.
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- 45.** W. Hordijk and M. Steel. Conditions for evolvability of autocatalytic sets: A formal example and analysis. *Origins of Life and Evolution of Biospheres* 44(2):111–124, 2014.
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- 43.** W. Hordijk, L. Hasenclever, J. Gao, D. Mincheva and J. Hein. An investigation into irreducible autocatalytic sets and power law distributed catalysis. *Natural Computing*, 13(3):287–296, 2014.
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- 37.** D. W. McShea and W. Hordijk. Complexity by subtraction. *Evolutionary Biology* 40(4):504–520, 2013.
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- 34.** W. Hordijk, M. Steel and S. Kauffman. The structure of autocatalytic sets: Evolvability, enablement, and emergence. *Acta Biotheoretica* 60(4):379–392, 2012.
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- 32.** W. Hordijk and O. Broennimann. Dispersal routes reconstruction and the minimum cost arborescence problem. *Journal of Theoretical Biology* 308:115–122, 2012.
- 31.** R. Engler, W. Hordijk and A. Guisan. The MIGCLIM R package - seamless integration of dispersal constraints into projections of species distribution models. *Ecography* 35(10):872–878, 2012.
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- 25.** P. Jebaraj Selvapeter and W. Hordijk. Cellular automata for image noise filtering. In A. Abraham, A. Carvalho, F. Herrera and V. Pai (eds.), *Proceedings of the World Congress on Nature and Biologically Inspired Computing 2009*, pp. 193–197, 2009.
- 24.** P. Vajda, A. E. Eiben and W. Hordijk. Parameter control methods for selection operators in genetic algorithms. In G. Rudolph et al. (eds.), *Parallel Problem Solving from Nature — PPSN X*, Springer, pp. 620–630, 2008.
- 23.** S. Paulson, W. Hordijk, P. Gift, Subarani and Shanmugam. Design of an interleaver for turbo codes using genetic algorithms. *International Journal of Artificial Intelligence and Machine Learning* 6(2):1–5, 2006.
- 22.** W. Hordijk. An overview of biologically inspired computing in information security. In K. Anbumani (ed.), *Proceedings of the National Conference on Information Security*, pp. 1–14, 2005.
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- 16.** W. Hordijk and M. Steel. Detecting autocatalytic, self-sustaining sets in chemical reaction systems. *Journal of Theoretical Biology* 227(4):451–461, 2004.
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- 14.** T. Biyikoglu, W. Hordijk, J. Leydold, T. Pisanski and P. F. Stadler. Graph laplacians, nodal domains, and hyperplane arrangements. *Linear Algebra and its Applications* 390:155–174, 2004.
- 13.** C. Fried, W. Hordijk, S. J. Prohaska, C. R. Stadler and P. F. Stadler. The footprint sorting problem. *Journal of Chemical Information and Computer Sciences* 44:332–338, 2004.
- 12.** W. Hordijk and J. F. Fontanari. Catalytic reaction sets, decay, and the preservation of information. In *Proceedings of the IEEE International Conference on Integration of Knowledge Intensive Multi-Agent Systems*, pp. 133–138, 2003.
- 11.** P. F. Stadler, W. Hordijk and J. F. Fontanari. Phase transition and landscape statistics of the number partitioning problem. *Physical Review E* 67:056701, 2003.
- 10.** W. Hordijk, J. F. Fontanari and P. F. Stadler. Shapes of tree representations of spin-glass landscapes. *Journal of Physics A* 36:3671–3681, 2003.
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4. W. Hordijk, J. P. Crutchfield and M. Mitchell. Embedded-particle computation in evolved cellular automata. In T. Toffoli, M. Biafore, and J. Leão (eds.), *PhysComp96*, New England Complex Systems Institute, pp. 153–158, 1996.
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Book chapters

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1. W. Hordijk, M. Steel and S. Kauffman. Autocatalytic sets: The origin of life, evolution, and functional organization. In P. Pontarotti (ed.), *Evolutionary Biology: Exobiology and Evolutionary Mechanisms*, Springer, pp. 49–60, 2013.

Other contributions

25. W. Hordijk. Evolution as a problem solver in computer science. *TVOL*, 29 January 2018. <https://evolution-institute.org/article/evolution-as-a-problem-solver-in-computer-science/>
24. W. Hordijk. What's your problem? *Plus magazine*, January 24, 2018. plus.maths.org/content/whats-your-problem
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- 10.** W. Hordijk. Preserving species in the face of climate change. *Plus magazine*, April 25, 2016.
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- 9.** W. Hordijk. How a game of billiards solved a queueing problem. *Plus magazine*, March 29, 2016.
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- 8.** W. Hordijk. Life: It's chemistry! *The Naked Scientists*, March 15, 2016.
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