

List of Publications¹

Bastien Chopard

March 31, 2021

Books

1. B. Chopard and M. Droz, *Cellular Automata Modeling of Physical Systems*, Cambridge University Press, Collection Aléa, 1998 341 pages
2. B. Chopard and M. Droz, *Cellular Automata Modeling of Physical Systems*, Tsinghua University Press, 2003, Chinese translation.
3. B. Chopard and M. Tomassini, *Métaheuristique pour l'optimisation*, 2017, Press Universitaire de Perpignan.
4. B. Chopard and M. Tomassini, *Metaheuristics for optimization*, 2018, Springer.

Chapter in book

1. B. Chopard and P. Sloot, in *Algorithmic beauty of seaweeds, Sponges and Corals*, J.A Kaandrop and J. E. Kuebler, Springer Verlag Berlin Heidelberg, 2001.
2. B. Chopard, *Cellular Automata Modeling of Physical Systems*, pp 865-892 Springer Encyclopedia of Complexity and Systems Science, 2009, ISBN 978-0-387-75888-6
3. B. Chopard, *Basics of Grid refinement in Lattice Boltzmann*, in Lectures on Lattice Boltzmann Methods for complex fluid flows, Stefano Ubertini et al (Edt), p. 120, Science4 Press, ISBN 9788896504000. 2009
4. B. Chopard, *High performance computing in Lattice Boltzmann models*, in Lectures on Lattice Boltzmann Methods for complex fluid flows, Stefano Ubertini et al (Edt), p. 120, Science4 Press, ISBN 9788896504000. 2009.
5. Alfons G. Hoekstra, Alfonso Caiazzo, Eric Lorenz, Jean-Luc Falcone, and Bastien Chopard. *Complex Automata: multi-scale Modeling with coupled Cellular Automata*, in Modelling Complex Systems by Cellular Automata, chapter 3, Springer Verlag, 2010.
6. Alfons G. Hoekstra, Bastien Chopard, Pat Lawford *Multiscale Modelling and Simulation*, in Computational Medicine: modelling the human body, chapter 7. Peter Coveney, Vanessa Diaz-Zuccarini, Peter Hunter and Marco Viceconti Edts. Oxford University Press, 2014.

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7. B. Chopard, *Cellular Automata and lattice Boltzmann modeling of physical systems*, Handbook of Natural Computing, Rozenberg, Grzegorz; Bäck, Thomas; Kok, Joost N. (Eds.) Springer, pp. 287–331, 2013
8. Xavier Meyer, Bastien Chopard and Paul Albuquerque *Linear programming on a GPU: a case study*, in Designing Scientific Applications on GPUs. Raphael Couturier Edt. Chapman & Hall/CRC Numerical Analysis and Scientific Computing Series. 2013
9. Alexandru Mizeranschi, Derek Groen, Joris Borgdorff, Alfons G. Hoekstra, Bastien Chopard and Werner Dubitzky. *Anatomy and Physiology of Multiscale Modeling and Simulation in Systems Medicine*. in System Medicine, Volume 1386 of the series Methods in Molecular Biology, pp 375-404, Springer Protocols, 2015. http://rd.springer.com/protocol/10.1007/978-1-4939-3283-2_17

Proceedings and Edited book

1. Cellular Automata, 5th Int. Conf. on Cellular Automata for research and Industry (ACRI 2002), Geneva, Switzerland, Oct 2002. S. Bandini, B. Chopard and M. Tomassini Eds, LNCS 2493, 2002.
2. Cellular Automata, 6th Int. Conf. on Cellular Automata for research and Industry (ACRI 2004), Amsterdam, The Netherlands, Oct. 2004. PMA Sloot, B. Chopard and A. Hoekstra Eds, LNCS 3305, 2004.
3. Cellular Automata, 7th Int. Conf. on Cellular Automata for research and Industry (ACRI 2006), Perpignan, France, Sept 20-23, 2006, S. El Yacoubi, B. Chopard and S. Bandini Eds, LNCS 4173, 2006.
4. International Journal of Multiscale Computational Engineering, Vol 4 (2), 2006. V. Krzhizhanovska, B. Chopard, Y. Gorbachev, Guest Editors
5. Discrete Simulation of Fluid Dynamics, DSFD 2006, Geneva. Int. J. Mod. Phys. C, Vol 18 (4), B. Chopard and M. Droz, Guest Editors.
6. Focus on Recent Advances in Particle Methods for Fluid Dynamics, Special Issue in J. Stat. Mech. Theo. Exp (JSTAT), Paulo C Philippi and Bastien Chopard Eds, 2009 (<http://www.iop.org/EJ/journal/-page=extra.focus6/jstat>)
7. Multi-scale systems in fluids and soft matter: approaches, numerics and applications. Serguey Karabasov, Dmitry Nerukh, Alfons Hoekstra, Bastien Chopard and Peter Coveney Edts. Phil. Trans. Royal Soc. A. Vol 372, no 2021. 2014
8. Advance HPC-Based Computational Modeling in Biomechanics and System Biology. Mariano Vázquez, Peter V. Coveney, Hernan Edardo Grecco, Alfons Hoekstra and Bastien Chopard eds (2019). Frontiers Media. doi: 10.3389/978-2-88945-817-2
9. Fluid dynamics, soft matter and complex systems: recent results and new methods. Bastien Chopard, Santosh Ansumali, Dhiraj V. Patil, Ilya Karlin and Diwakar S. Venkatesan. Phil. Trans A. vol 378, No 2175, (2020). <https://royalsocietypublishing.org/toc/rsta/2020/378/2175>

Journals

1. B. Chopard and P. Bouvier *Covariance d'échelle et approximation post-newtoniennes dans le cadre de la relativité générale*, Archives des Sciences **35**, 251 (1982).
2. B. Chopard and M. Droz *Cellular automata approach to non equilibrium phase transitions in a surface reaction model: static and dynamic properties*, J. Phys. A **21**, 205, (1988).
3. B. Chopard and M. Droz, *Cellular automata model for heat conduction in a fluid*, Phys. Lett. A **126**, 476, (1988).
4. B. Chopard and M. Droz, *Cellular automata approach to physical problems*, HPA **61**, 801, (1988).
5. B. Chopard and M. Droz, *Cellular automata approach to nonequilibrium correlation functions in a fluid*, HPA **61**, 893, (1988).
6. B. Chopard, M. Droz and M. Kolb, *Cellular Automata approach to nonequilibrium diffusion and gradient percolation*, J. Phys. **A22**, 1609-1619, (1989).
7. B. Chopard, *A Cellular Automata Model of Large Scale Moving Objects*, J. Phys **A23**, 1671-87, (1990).
8. B. Chopard and M. Droz, *Cellular Automata Model for the Diffusion Equation*, J. Stat. Phys. **64**, 859-892 (1991).
9. B. Chopard and M. Droz, *Microscopic Study of the Properties of the Reaction Front in an $A + B \rightarrow C$ Reaction-Diffusion Process*, Europhysics Letters **15**, 459-464, (1991).
10. B. Chopard, *Numerical Simulation of a Langevin Dynamics of Wetting*, J. Phys. **A24**, L345-L350, (1991).
11. B. Chopard, S. Cornet and M. Droz, *On the role of fluctuations for inhomogeneous reaction-diffusion phenomena*, Phys. Rev. **A 44**, 4826-4832, (1991).
12. B. Chopard, F. Bagnoli, M. Droz and L. Frachebourg, *Critical behavior of a diffusive model with one adsorbing state*, J. Phys. **A 25**, 1085 (1992).
13. B. Chopard, H.J. Herrmann and T. Vicsek, *Structures and Growth Mechanism of Mineral Dendrites*, Nature **353**, p. 409-412, (1991).
14. S. Cornell, M. Droz and B. Chopard, *Some properties of the diffusion-limited reaction $nA + mB \rightarrow C$ with homogeneous and inhomogeneous initial conditions*, Physica **A188** 322-336, 1992.
15. B. Chopard, M. Droz, T. Karapiperis, Z. Racz. *Properties of the reaction front in a $A + B \xrightarrow[k_2]{k_1} C$ reaction diffusion process*, Phys. Rev. **E 47**, R40-R43, 1993.
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17. B. Chopard, M. Droz and L. Frachebourg, *Multiparticle Lattice Gas Automata for Reaction Diffusion Systems*, Int. J. of Mod. Phys. C, **5**, p. 47, (1994).
18. B. Chopard, P. Luthi and M. Droz, *Reaction-diffusion cellular automata model for the formation of Liesegang patterns*, Phys. Rev. Lett. **72**, 1384, Feb 94.
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20. O. V. Pictet, M. M. Dacorogna, B. Chopard, M. Oussaidene, R. Schirru and M. Tomassini, "Using Genetic Algorithms for Robust Optimization in Financial Applications," PASE Workshop 1995, Neural Network World 4, 573-587, 1995.
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24. Bastien Chopard, Pascal O. Luthi and Jean-Frdric Wagen, *A lattice Boltzmann method for wave propagation in urban microcells*, IEE Proceedings - Microwaves, Antennas and Propagation, Vol. 144, No 4., p. 251-255, 1997.
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26. B. Chopard and P.O. Luthi, *Lattice Boltzmann Computations and Applications to Physics*, Theoretical Computer Science, **217** pp. 115-130, 1999.
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34. A. Masselot and B. Chopard *A Multiparticle Lattice Gas Model for Hydrodynamics*, Workshop on Discrete fluid simulation, Oxford 1998 and Int. J. Mod. Phys. C. **9**, No. 8. p. 1221, 1998.
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39. Alexandre Dupuis and Bastien Chopard, *Lattice Gas Modeling of Scour Formation Under Submarine Pipeline*, Journal of Computational Physics, 178, pp. 161-174, 2002.
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