

Curriculum Vitae

Jaap Kaandorp

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Professional experience

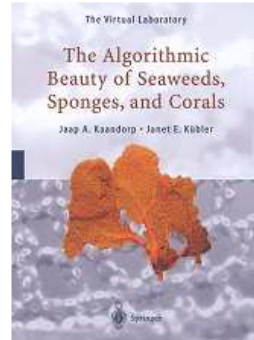
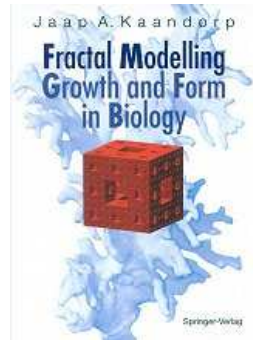
In 1985 I received my MSc, with distinction, in biology (main subject marine biology) and a PhD (subject modelling growth and form of marine organisms) in computer science and mathematics in 1992, both from the University of Amsterdam. I have worked from 1985 - 1987 as a researcher at the Centre of Computer Science and Mathematics in Amsterdam. In 1992 I did research as a postdoctoral fellow, on a Government of Canada Award, at the Department of Computer Science of the University of Calgary in Canada. Currently I am working as an associate professor at the Section Computational Science of the Faculty of Science of the University of Amsterdam.

Ongoing Research

My research interests are: morphogenesis, marine sessile organisms, evolutionary processes, modelling and simulation of developmental regulatory networks and metabolic pathways, modelling and simulation of growth and form, biomechanics. Currently I have a group of 2 MSc and 10 Phd students and one postdoc at the Section Computational Science of the Faculty of Science of the University of Amsterdam. We do research at a range of different levels of organisation (genome-gene regulatory networks-cells-tissue-organism). We work on modelling and analysis of gene regulation in cnidarians (corals and *Nematostella vectensis*), sponges, yeast and *Drosophila*. We do research on biomineralisation in corals and sponges (experimental and modelling work). We are working on growth and form of corals and the influence of light and hydrodynamics on the morphological plasticity and calcification in corals. This work is a combination of modelling work, a genetic comparison between different growth forms, phylogenetics, morphometrics of three-dimensional growth forms obtained from CT scans and field work.

publications

Over 100 publications in refereed publications in international journals and books. Selected publications:



- J.A. Kaandorp. *Fractal modelling: growth and form in biology*. Springer-Verlag, Berlin, New York, 1994
- J.A. Kaandorp and J.E. Kuebler, *The algorithmic beauty of seaweeds, sponges and corals*, Springer-Verlag, Heidelberg, New York, 2001
- J.A. Kaandorp, E.A. Koopman, P.M.A. Sloot, R.P.M. Bak, M.J.A. Vermeij and L.E.H. Lampmann Simulation and analysis of flow patterns around the scleractinian coral *Madracis mirabilis* (Duchassaing and Michelotti). *Phil. Trans. R. Soc. Lond. B* 358 (1437): 1551 - 1557, 2003
- J.A. Kaandorp, P.M.A. Sloot, R.M.H. Merks, R.P.M. Bak and M.J.A. Vermeij, Morphogenesis of the branching reef coral *Madracis mirabilis*, *Proc. Roy. Soc. B.* 272:127-133, 2005.
- J. Cui, J.A. Kaandorp Mathematical Modelling of Calcium Homeostasis in Yeast Cells *Cell Calcium* 39:337-348, 2006
- J. Vidal Rodriguez, J.A. Kaandorp, M. Dobrzynski and J.G. Blom. Spatial Stochastic Modelling of the phosphoenolpyruvate-dependent phosphotransferase (PTS) pathway in *Escherichia coli*, *Bioinformatics*, 22:1895-1901, 2006
- K. Kruszynski, J.A. Kaandorp and R. van Liere A computational method for quantifying morphological variation in scleractinian corals, *Coral Reefs* 26:831-840, 2007
- Y. Fomekong Nanfack, J.A. Kaandorp and J.G. Blom Efficient parameter estimation for spatio-temporal models of pattern formation: Case study of *Drosophila melanogaster* *Bioinformatics* 23:3356-3363, 2007
- J.A. Kaandorp, J.G. Blom, J. Verhoef, M. Filatov, M. Postma and W.E.G. Müller, Modelling genetic regulation of growth and form in a branching sponge *Proc. Roy. Soc. B.* 275:2569-2577, 2008
- J. Cui, J.A. Kaandorp and C.M. Lloyd Simulating In Vitro Transcriptional Response of Zinc Homeostasis System in *Escherichia coli*, *BMC Systems Biology* 2:89, 2008
- J. Cui, J.A. Kaandorp, O. O. Ositelu, V. Beaudry, A. Knight, Y. Fomekong Nanfack, K. W. Cunningham, Simulating Calcium Influx and Free Calcium Concentrations in Yeast, *Cell Calcium* 45: 123-132, 2009
- M. Ashyraliyev, Y. Fomekong Nanfack, J.A. Kaandorp, J.G. Blom Systems biology: Parameter estimation for biochemical models, *FEBS journal* 276:886-902, 2009

