

Curriculum Vitae (Short version)

Frederik Michel Dekking

Born 25 August 1946, place of birth: Amsterdam.
Married, two children (1977 en 1979).

Education

Highschool: Gymnasium Beta, 1958-1964.

MSc. Mathematics and Mechanics, University of Amsterdam, June 1974.

PhD. Thesis “Combinatorial and statistical properties of sequences generated by substitutions”, University of Nijmegen. Thesis advisors: Prof.dr.M.S.Keane and Prof.dr.W.Vervaat, June 1980.

Career

Full professor, faculty EEMCS, Delft University of Technology, July 1997-now.
Associate professor, faculty TWI, Delft University of Technology, December 1985-July 1997.

Assistant professor, faculty TWI, Delft University of Technology, September 1981-December 1985.

Assistant professor, Mathematical Institute, University of Nijmegen, September 1977-September 1981.

Attaché de Recherche, C.N.R.S., Université de Rennes, September 1975- September 1977.

Highschool teacher, Barlaeus Gymnasium, Amsterdam, September 1974-September 1975.

Assistant professor, Mathematical Institute, University of Amsterdam, September 1974-September 1975.

Teaching assistant, Mathematical Institute, University of Amsterdam, October 1971-September 1974.

Assistant, Section Statistics, Mathematical Centre, Amsterdam, September 1970-October 1971.

Publications

1. On repetitions of blocks in binary sequences. *J. Combinatorial Theory Ser. A* 20 (1976), 292-299.

2. Transcendance du nombre de Thue Morse. C.R. Acad. Sci. Paris Sér. A-B 285 (1977), 157-160.
3. The spectrum of dynamical systems arising from substitutions of constant length. Z. Wahrscheinlichkeitstheorie und verw. Gebiete 41 (1978), 221-239.
4. Mixing properties of substitutions. (with M. Keane). Z. Wahrscheinlichkeitstheorie und verw. Gebiete 42 (1978), 23-33.
5. Strongly non-repetitive sequences and progression-free sets. J. Combinatorial Theory Ser. A 27 (1979), 181-185.
6. Some examples of sequence entropy as an isomorphism invariant. Trans. Amer. Math. Soc. 259 (1980), 167-183.
7. Regularity and irregularity of sequences generated by automata. Sémin. Th. Nombres Bordeaux '79-'80, 901-910.
8. Variations on Peano. Nieuw Arch. Wisk. (3) 28 (1980), 275-281.
9. On the structure of selfgenerating sequences. Sémin. Th. Nombres Bordeaux '80-'81, 3101-3106.
10. Uniform distribution modulo one: a geometrical viewpoint. (with M. Mendès France). J. Reine Angew. Math. 329 (1981), 143-153.
11. Replicating superfigures and endomorphisms of free groups. J. Combin. Theory Ser. A 32 (1982), 315-320.
12. Recurrent sets. Advances in Math. 44 (1982), 78-104.
13. On transience and recurrence of generalized random walks. Z. Wahrsch. verw. Geb. 61 (1982), 459-465.
14. Folds! (with M. Mendès France and A. v.d. Poorten). Math. Intelligencer 4 (1982), 130-138, 173-181, 190-195.
15. Iterated morphisms, fractals and generalized random walks. In: Fête des Mots. Acte des Journées, Rouen 7-8 Juin 1982. GRECO de Programmation du C.N.R.S. 1983, pag. 4-16.
16. Pentagon Tilings. Nieuw Arch. Wisk. (4), 1 (1983), 63-69.
17. Recurrent sets: a fractal formalism. Report 82-32. Dept. of Math. and Inform. Delft, 1982.
18. On the distribution of digits in arithmetic sequences. Sémin. Theorie Nombres Bordeaux '82-'83, 3201-3212.

19. Fourier coding and reconstruction of complicated contours. (with P.J. van Otterloo). *IEEE Trans.Syst.,Man, Cybern.* vol. SMC 16, (1986), p. 395-404.
20. Structures récurrentes. In: *Concrétisations de la Mathématiques. Projets pour la Vilette.* (Ed: J.M. Kantor). Paris, 1986, p. 79-85.
21. Constructions de fractals et problèmes de dimension. In: *Fractals. Dimensions non-entières et applications.* (Ed: G. Cherbit) Masson, Paris, 1987, p. 132-150.
22. Subcritical branching processes in a two-state random environment, and a percolation problem on trees. *J. Appl. Prob.* 24 (1987), 798-808.
23. On the survival probability of a branching process in a finite state i.i.d. environment. *Stoch.Proc. Appl.* 27 (1988), 151-157.
24. Superbranching processes and projections of random Cantor sets (with G.J. Grimmett). *Prob. Th. Rel. Fields* 78 (1988), 335-355.
25. On the probability of occurrence of labelled subtrees of a randomly labelled tree. *Theoretical Computer Science* 65 (1989), 149-152.
26. Critical phenomena for random Cantor sets. *Sém Théorie Nomb. Bordeaux '87-'88*, 2301-2308.
27. Branching processes that grow faster than binary splitting. *Amer. Math. Monthly* 98 (1991), 728-731.
28. A nonlinear evolution with travelling waves. *Number Theory and Physics.* (Eds: J.M. Luck, P. Moussa, M. Waldschmidt). *Springer Lect. Notes in Physics* 47 (1990), 204-208.
29. On the structure of Mandelbrot's percolation process and other random Cantor sets (with R.W.J. Meester). *J. Statist. Phys.* 58 (1990), 1109-1125.
30. On family trees and subtrees of simple branching processes (with A.G. Pakes). *J. Theoret. Probab.* 4 (1991), 353-369.
31. Substitutions, branching processes and fractal sets. *Proceedings of the NATO ASI on Fractal Geometry and Analysis, Montréal, July 1989,* (Eds.: J. Bélair, S. Dubuc) *Kluwer Acad. Publ.* Dordrecht, Boston, London, 1991, 99-119.
32. Limit distributions for minimal displacement of branching random walks (with B. Host). *J. Prob. Th. Rel. Fields* 90 (1991), 403-426.

33. Iteration of maps by an automaton. *Discrete Math.* 126 (1994), 81-86.
34. Marches automatiques. *J. Théor. Nombres Bordeaux* 5 (1993), 93-100.
35. On the Thue-Morse measure. *Acta Univ. Carolin.-Math. Phys.* 33 (1992), 35-40.
36. Fractal image coding techniques and contraction operators (with T. Bedford and M.S. Keane). *Nieuw Arch. Wisk.* (4) 10 (1992), 185-217.
37. Fractal coding of monochrome images (with T. Bedford, M. Breeuwer, M.S. Keane and D. v. Schooneveld). *Signal Processing: Image Communication* 6 (1994), 405-419.
38. Deterministic growth-dispersal models and branching random walk. *J. Math. Anal. Appl.* 192 (1995), 529-538.
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40. Random and automatic walks. In: *Beyond Quasicrystals* (Eds: F. Axel and D. Gratias), Les Editions de Physique and Springer, Berlin, 1995, p. 415-432.
41. On the shape of the wavefront of branching random walk (with E.R. Speer). In: *Classical and Modern Branching Processes*, (Eds. K.B. Athreya and P. Jagers), IMA Volumes in Mathematics and its Applications Vol.84, Springer, New York, 1997, 73-88.
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44. Boundedness of oriented walks generated by substitutions (with Z.-Y. Wen), *J. Théor. Nombres Bordeaux* 8 (1996), 377-386.
45. Simulation of rough elastic contacts (with J.J. Kalker and E.A.H. Vollebregt). *J. Appl. Mechanics* 64 (1997), 361-368.
46. Fractal image coding: some mathematical remarks on its limits and its prospects In: *Fractal image coding and analysis* (Trondheim, Norway, 1995), 117-132, NATO Adv.Sci.Inst.Ser.F, 159, (Ed.: Y. Fisher), Springer Verlag, Berlin, 1998.
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50. Binary images and tree-indexed Markov chains (with C. Kraaikamp and J.G. Schouten), Rev. Roumaine Math. Pures Appl. 44 (1999), 181-188.
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52. Convergence of Branching Cellular Automata (with P.van der Wal). In: Fractals and Beyond. Complexities in the Sciences., (Ed.: M.M.Novak), World Scientific, Singapore, 1998, 195-200.
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65. Uniform distribution modulo one and binary search trees (with P. van der Wal), *J.Theorie Nombres Bordeaux* 14 (2002), 415-424.
66. An almost sure result for path lengths in binary search trees (with L.E.Meester), *Adv. Appl.Prob.* 35 (2003), 363-376.
67. Which ABO-matching rule should be the decisive factor in the choice between a highly urgent and an elective patient? (with J. de Meester, M. Bogers, H. de Winter, J. Smits, L. Meester, et al.), *Transplant International* 15 (2002), 431-435.
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69. Characterization of Subsurface Heterogeneity: Integration of Soft and Hard Information Using the Multidimensional Coupled Markov Chain Approach, E.Park, A.Elfeki, M.Dekking. In: Chin-Fu Tsang ands Apps, Jon A. (Eds.), Proceedings of the Second international symposium on Underground Injection Science and Technology, Lawrence Berkeley National Laboratory, Berkeley, California (2003), 1-8.
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73. On random walks in random scenery (with P.Liardet). In "Dynamics and Stochastics" (Eds. E.Verbitskiy, D.Denteneer and F. Den Hollander). IMS Lecture Notes Monograph Series 48, Baltimore USA: Institute for Mathematical Statistics.pp. 47-52
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76. A comparison of models for advection, dispersion, and kinetic adsorption (with Gerard Uffink, Amro Elfeki, Johannes Bruining and Cor Kraaikamp), submitted june 2006.
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80. Subsurface characterization using a cellular automaton approach (with H.M.Schuttelaars and C. Berentsen). In preparation.