

PUBLICATIONS of Esko Valkeila

June 9, 2003

Mathematical publications

Journals with a referee system

1. *Valkeila, E.* (1982): A general Poisson approximation theorem, *Stochastics*, **7**: 151-171.
2. Nikunen, M. and *Valkeila, E.* (1984): A note on one-dimensional distances between two counting processes, *Theory of Probability and its Applications*, **29**: 558-561.
3. *Valkeila, E.* (1984): Remarks on counting processes with independent increments, *Commentationes Physico-Mathematicae* 60.
4. *Valkeila, E.* and Vostrikova, L. (1986): An integral representation for the Hellinger distance, *Mathematica Scandinavica*, **58**: 239-254.
5. *Valkeila, E.* and Vostrikova, L. (1987): On predictable tests of (c_n) -consistency of estimates, *Theory of Probability and its Applications*, **32**: 477-489.
6. Dzhaparidze, K. and *Valkeila, E.* (1990): On the Hellinger type distances for filtered experiments, *Probability Theory and Related Fields*, **85**: 105 – 118.
7. Nikunen, M. and *Valkeila, E.* (1991): A Prohorov bound for a Poisson process and an arbitrary counting process with some applications, *Stochastics and Stochastic Reports*, **37**: 133-151.
8. *Valkeila, E.* (1995): On normal approximation of a process with independent increments, *Russian Mathematical Surveys*, **50**: 945-961.
9. Norros, I., *Valkeila, E.* and Virtamo, J. (1999): An elementary approach to a Girsanov formula and other analytical results on fractional Brownian motions *Bernoulli*, **5**, 571 -587.

10. Novikov, A. and *Valkeila, E.* (1999): On some maximal inequalities for fractional Brownian motions, *Statistics & Probability Letters*, **44**, 47 -54.
11. *Valkeila, E.* and Melnikov, A. (1999): Martingale models for stochastic approximation and their convergence, *Theory of Probability and its Applications*, **44**, 278-311 (in russian).
12. Gushchin, A.A. and *Valkeila, E.* (2001): On statistical experiments converging to exponential limits, *Statistics & Decisions* **19**, 173-191.
13. Mishura, Y. and *Valkeila, E.* (2000): An isometric approach to generalized stochastic integrals, *Journal of Theoretical Probability*, **13**, 673-693.
14. Mémin, J., Mishura, Y. and *Valkeila, E.* (2001): Inequalities for the moments of Wiener integrals with respects to a fractional Brownian motion. *Statistics & Probability Letters* **51**, 197-206.
15. Mishura, Y. and *Valkeila, E.* (2001): Martingale transforms and Girsanov theorem for long-memory Gaussian processes. *Statistics & Probability Letters* **55**, 421-430.
16. Delbaen, F., Kabanov, Y. and *Valkeila, E.* (2002): Hedging under transaction costs in currency markets: a discrete-time model. *Mathematical Finance*, **12**, 45-61.
17. Dzhaparidze, K. Spreij, P. and *Valkeila, E.* (2002): Information concepts in filtered experiments. *Theory of Probability and Mathematical Statistics* **67**, 38-56.
18. Dzhaparidze, K. Spreij, P. and *Valkeila, E.* (2003): Information processes for semimartingale experiments. *Annals of Probability* **31**, 216-243.
19. Sottinen, T. and *Valkeila, E.* (2003): On arbitrage and replication in the fractional Black-Scholes pricing model. *Statistics & Decisions*, **21**, to appear.

Proceedings with a referee system

20. Nikunen, M. and *Valkeila, E.* (1988): On the Levy-Prohorov distances between counting processes. *Proceedings of the First Finnish-Soviet Symposium in Probability Theory and Mathematical Statistics*, *Ann. Acad.Sci.Fenn Ser. A.I.*, **13**: 255 –258.

21. Nikunen, M. and *Valkeila, E.* (1985): On metric distances between two counting processes, in. Krylov, Liptser and Novikov (ed.) Statistics and control of random processes, New York, pp. 377-388.
22. Dzhaparidze, K. and *Valkeila, E.* (1989): On large deviation probabilities for the maximum likelihood estimators, Probability Theory and Mathematical Statistics Vol. 1 (eds. Grigelionis, B. et. al.), 285 -292.
23. *Valkeila, E.* (1993): A note on the convergence of moments and the martingale CLT, Proceedings of the Second Finnish-Soviet Symposium in Probability Theory and Mathematical Statistics (eds. A.V. Melnikov, H. Niemi, A.N. Shiryaev and *E. Valkeila*). Ann. Acad. Sci. Fenn. Ser. A.I. Mathematica, **17**, 139-149.
24. Melnikov, A.V., Rodkina, A.E. and *Valkeila, E.* (1993): On a general class of stochastic approximation algorithms. Proceedings of the Third Finnish-Soviet Symposium on Probability Theory and Mathematical Statistics (eds. H. Niemi, G. Högnas, A.N. Shiryaev and A.V. Melnikov). Frontiers in Pure and Applied Probability, **1**: 183 - 196.
25. *Valkeila, E.* (1996): A note on large deviation probabilities for the maximum likelihood estimator in filtered experiments. Proceedings of the Fourth Finnish-Soviet Symposium on Probability Theory and Mathematical Statistics (eds. A.N. Shiryaev, A.V. Melnikov, H. Niemi and *E. Valkeila*). Frontiers in Pure and Applied Probability, **8**: 207-216.
26. *Valkeila, E.* (1997): An inequality for the local asymptotic normality. Statistics and Control of Stochastic Processes. The Liptser Festschrift. (eds. Yu. Kabanov, B. Rozovskii and A. Shiryaev) World Scientific, Singapore, 323-342.
27. Dzhaparidze, K., Spreij, P. and *Valkeila, E.* (1997): On Hellinger Processes for Parametric Families of Experiments. Statistics and Control of Stochastic Processes. The Liptser Festschrift. (eds. Yu. Kabanov, B. Rozovskii and A. Shiryaev) World Scientific, Singapore, 41-62.
28. Gushchin, A.A. and *Valkeila, E.* (2001): Exponential Approximation of Statistical Experiments, in Asymptotic Methods in Probability and Statistics with Applications, Balakrishnan, N. et.al (ed), Birkhäuser, pp.409 - 423.
29. Mishura, Yu. S. and *Valkeila, E.* (2002): On the absence of arbitrage in the mixed Brownian-fractional Brownian market model. Proceedings of the Steklov Institute of Mathematics, v.237, 215-224.

30. Shiryaev, A.N., *Valkeila, E.* and Vostrikova, L. (2000), About characterization of lower and upper functions for square-integrable martingales. Proceedings of the Steklov Institute of Mathematics, v.237, 281-292.

Submitted publications – journals

31. Kukush, A., Mishura, Y. and *Valkeila, E.* (2001), Statistical inference with fractional Brownian motion, 32 pages.
32. Gushchin A. A. and *Valkeila, E.* (2003), Approximations and limit theorems for log-likelihood processes in the binary case, Department of Mathematics, University of Helsinki, Preprint 359, 47 pages.

Other mathematical publications

33. *Valkeila, E.* (1984): Studies in distributional properties of counting processes. Academic Dissertation, Helsinki. [Contains the papers 1, 2, 3 and 21.]
34. *Valkeila, E.* (1980): Maksimientropiamenetelmä tehospektrin estimoinnissa. Helsingin yliopisto, seismologian laitos. Raportti T-10, Helsinki, 12 pages (in finnish).
35. *Valkeila, E.* (1991): Computer algebra and stochastic analysis, some possibilities, CWI-Quarterly, 4: 229-238.
36. *Valkeila, E.* (1994): On the computer generation of a Poisson Process., Proceedings of the Workshop on Symbolic and Numeric Computing, Helsinki University of Technology 1993 (eds. Apiola, H., Laine, M. and *Valkeila, E.*), Research Reports B10, Rolf Nevanlinna Institute, 187 -195.
37. *Valkeila, E.* (1998): Rahoituksen matematiikkaa (in finnish), Solmu 2/1998-1999, 6-9.
38. Salminen, P. and *Valkeila, E.* (1999): Black-Scholesin kaava: rahoitusteorian peruselementti, Arkhimedes 3, 21-24.

Other publications – journals

39. Aho, K., Gordin, A., Palosuo, T. Punsar, S., *Valkeila, E.*, Karvonen, M., Inkovaara, J. and Pasternack, A. (1984): Thyroid autoimmunity and cardiovascular diseases, European Heart Journal, 5: 43-46.

40. Virtamo, J., *Valkeila, E.*, Alfthan, G., Punsar, S., Huttunen, J.K. and Karvonen, M.J. (1985): Serum selenium and the risk of coronary heart disease and stroke, *American Journal of Epidemiology*, **122**: 276-282.
41. Virtamo, J., *Valkeila, E.*, Alfthan, G., Punsar, S., Huttunen, J.K. and Karvonen, M.J. (1987): Serum selenium and the risk of cancer, *Cancer*, **60**: 145-148.
42. Nohynek, H., *Valkeila, E.*, Leinonen, M. and Eskola, J. (1995): Erythrocyte sedimentation rate, white blood cell count and serum C-reactive protein in assessing etiologic diagnosis of acute lower respiratory infections in children, *Pediatric Infectious Diseases Journal*, **6**: 484-490.
43. Hämäläinen, M.L., Hoppu, K., *Valkeila, E.* and Santavuori, P. (1997): Ibuprofen or acetaminophen for the acute treatment of migraine in children: A double-blind, randomized, placebo controlled crossover study, *Neurology*, **48**: 103-107.
44. Mälkki-Laine, L. and *Valkeila, E.* (1998): Application of regression transformations to the determination of reaction orders in stability studies. *International Journal of Pharmaceutics*, **161**: 29-35.

Edited proceedings

- Proceedings of the Second Finnish-Soviet Symposium in Probability Theory and Mathematical Statistics, edited by A.V. Melnikov, H. Niemi, A.N. Shiryaev and *E. Valkeila*, appeared in the series *Annales Academiæ Scientiarum Fennicæ, Series A.I. Mathematica, Volumen 17*, 1992.
- Proceedings of the Workshop on Symbolic and Numeric Computing, edited by H. Apiola, M. Laine and *E. Valkeila*, Rolf Nevanlinna Institute, Research Reports B10, 1994.
- Proceedings of the Fourth Finnish-Soviet Symposium in Probability Theory and Mathematical Statistics, edited by A.V. Melnikov, H. Niemi, A.N. Shiryaev and *E. Valkeila*, *Frontiers in Pure and Applied Probability, Vol. 8.*, TVP Press, Moscow, 1996.

Preprints and manuscripts

45. *Valkeila, E.* (1999), On some properties of geometric fractional Brownian motions, Department of Mathematics, University of Helsinki, Preprint 224, 12 pages.

46. Sottinen, T. and *Valkeila, E.* (2001), Fractional Brownian motion as a model in finance, Department of Mathematics, University of Helsinki, Preprint 302, 16 pages.

Teaching material

47. *Valkeila, E.* (2000): Mathematical finance. Typeset lecture notes, 40 pages.
48. *Valkeila, E.* (2001): Stochastic analysis and finance. Typeset lecture notes, 70 pages.
49. *Valkeila, E.* (2001): Todennäköisyysteoria. Typeset lecture notes, 77 pages (in Finnish).
<http://www.math.helsinki.fi/~valkeila/teaching.html>
50. *Valkeila, E.* (2002): Martingaalit ja stokastinen analyysi. Typeset lecture notes (in Finnish).
<http://www.math.helsinki.fi/~valkeila/teaching.html>