

## CURRICULUM VITAE

### Vladas Pipiras

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#### Personal Information

Born on November 9, 1974, Šilalė, Lithuania. Lithuanian citizen. Married+1.

#### Employment

July 2002 - Assistant Professor, Department of Statistics and Operations Research,  
University of North Carolina at Chapel Hill

#### Education

May 2002 Boston University, Boston. Ph.D. in Mathematics (Murad S. Taqqu,  
advisor)

June 1997 Université Paris 6, Paris, France. M.Sc. (French D.E.A.) in Probability  
and Applications (Jean Jacod, advisor)

June 1996 Vilnius University, Vilnius, Lithuania. B.Sc. in Mathematics (Vigirdas  
Mackevičius, advisor)

#### Awards

2004 Junior Faculty Development Award at UNC

1997 - 2002 Presidential fellowship, Research assistantship, Boston University

1996 - 1997 Recipient of a French government stipend, Université Paris 6

#### Research Grants

2005 - 2008 National Science Foundation grant, “Random processes and fields: dis-  
crete approximations, special wavelet-based decompositions and simula-  
tion” (PI: Pipiras, \$105,000)

2006 - 2009 National Science Foundation grant, “Collaborative Research: Heavy  
Traffic Limit Models and Control Analysis for Wireless Queuing Sys-  
tems - incorporating Long-Range Dependence and Heavy Tails” (PIs:  
Buche, Ghosh and Pipiras, \$43,000)

## Teaching

University of North Carolina at Chapel Hill: Stat 321 - Special Topics: Wavelets in Statistics and Probability (Fall 2004); Stat 102 - Statistical Methods II (Spring 2004, Spring 2005); Stat 126 - Introduction to Probability Theory (Fall 2005); Stat 154 - Measure and Integration Theory (Fall 2003, Fall 2005); Stat 236 - Stochastic Analysis (Spring 2003); Stat 31 - Introduction to Statistics (Fall 2002, Spring 2005)

## Research Papers

- [1] “Convergence of the Weierstrass-Mandelbrot process to fractional Brownian motion” (with M. S. Taqqu). *Fractals* 8 (2000), no. 4, pp. 369–384
- [2] “The Weierstrass-Mandelbrot process provides a series approximation to the harmonizable fractional stable motion” (with M. S. Taqqu). In C. Bandt, S. Graf, and M. Zähle, editors, *Fractal Geometry and Stochastics II*, pages 161–179. Birkhäuser, 2000
- [3] “Convergence of weighted sums of random variables with long-range dependence” (with M. S. Taqqu). *Stochastic Processes and Their Applications* 90 (2000), no. 1, pp. 157–174
- [4] “The limit of a renewal-reward process with heavy-tailed rewards is not a linear fractional stable motion” (with M. S. Taqqu). *Bernoulli* 6 (2000), no. 4, pp. 607–614
- [5] “Integration questions related to fractional Brownian motion” (with M. S. Taqqu). *Probability Theory and Related Fields* 118 (2000), no. 2, pp. 251–291
- [6] “Are classes of deterministic integrands for fractional Brownian motion on an interval complete?” (with M. S. Taqqu). *Bernoulli* 7 (2001), no. 6, pp. 873–897
- [7] “The structure of self-similar stable mixed moving averages” (with M. S. Taqqu). *The Annals of Probability*, vol. 30 (2002), no. 2, pp. 898–932
- [8] “Decomposition of self-similar stable mixed moving averages” (with M. S. Taqqu). *Probability Theory and Related Fields*, 123 (2002), pp. 412–452
- [9] “Deconvolution of fractional Brownian motion” (with M. S. Taqqu). *Journal of Time Series Analysis*, 23 (2002), no. 4, pp. 487–501
- [10] “Estimation of the self-similarity parameter in linear fractional stable motion” (with S. Stoev and M. S. Taqqu). *Signal Processing* 82 (2002), pp. 1873–1901
- [11] “Fractional calculus and its connections to fractional Brownian motion” (with M. S. Taqqu). In P. Doukhan, G. Oppenheim, and M. S. Taqqu, editors, *Long-range Dependence: Theory and Applications*. Birkhäuser, 2003, pp. 165–201
- [12] “Central limit theorems for partial sums of bounded functionals of infinite-variance moving averages” (with M. S. Taqqu). *Bernoulli* 9 (2003), no. 5, pp. 833–855
- [13] “Slow, fast and arbitrary growth conditions for renewal reward processes when the renewals and the rewards are heavy-tailed” (with J. B. Levy and M. S. Taqqu). *Bernoulli* 9 (2003), no. 1, pp. 121–163

- [14] “Can continuous-time stationary stable processes have discrete linear representations?” (with P. Abry and M. S. Taqqu). *Statistics & Probability Letters* 64 (2003), no. 2, pp. 147–157
- [15] “Dilated fractional stable motions” (with M. S. Taqqu). *Journal of Theoretical Probability* 17 (2004), no. 17, pp. 51–84
- [16] “Stable stationary processes related to cyclic flows” (with M. S. Taqqu). *The Annals of Probability* 32 (2004), no. 3A, pp. 2222–2260
- [17] “Wavelet-type expansion of the Rosenblatt process”. *The Journal of Fourier Analysis and Applications* 10 (2004), no. 6, pp. 599–634
- [18] “Wavelet-based simulation of fractional Brownian motion revisited”. *Applied and Computational Harmonic Analysis*, 19 (2005), no. 1, pp. 49–60
- [19] “Asymptotic normality for wavelet based estimators of fractional stable motion” (with P. Abry and M. S. Taqqu). Preprint, 2003
- [20] “Identification of periodic and cyclic fractional stable motions” (with M. S. Taqqu). Preprint, 2004
- [21] “Integral representations of periodic and cyclic fractional stable motions” (with M. S. Taqqu). Preprint, 2004
- [22] “Semi-additive functionals and cocycles in the context of self-similarity” (with M. S. Taqqu). Preprint, 2004
- [23] “On the usefulness of wavelet-based simulation of fractional Brownian motion”. Preprint, 2004
- [24] “Wavelet-based synthesis of the Rosenblatt process” (with P. Abry). Preprint, 2004. To appear in *Signal Processing*
- [25] “On rank estimation in symmetric matrices: the case of indefinite estimators” (with N. Fortuna and S. G. Donald). Preprint, 2004
- [26] “Long Range Dependence Analysis of Internet Traffic” (with F. Hernandez-Campos, L. Le, J. S. Marron, C. Park, J. Park, F. D. Smith, R. L. Smith, M. Trevero, and Z. Zhu). Preprint, 2004
- [27] “Local and global rank tests for multivariate varying-coefficient models” (with N. Fortuna and S. G. Donald). Preprint, 2006
- [28] “Gaussian stationary processes: adaptive wavelet decompositions, discrete approximations and their convergence” (with G. Didier). Preprint, 2006
- [29] “Adaptive wavelet decompositions of stationary time series” (with G. Didier). Preprint, 2006
- [30] “Heavy traffic methods in wireless systems: towards modeling heavy tails and long range dependence” (with R. Buche, A. Ghosh and J. Zhang). Preprint, 2006. To appear in IMA Volumes in Mathematics and its Applications Series, Vol. 143: Wireless Communications, Springer-Verlag
- [31] “Nonminimal sets, their projections and integral representations of stable processes”. Preprint, 2006.

**Students**

G. Didier, Ph.D. (current)

**Talks since 2002**

- May, 2006 ENS Lyon, France, “Adaptive wavelet decompositions of stationary time series”
- May, 2005 Workshop on Stochastic Analysis, University of Jyvaskyla, Finland, “Wavelet-based expansion and simulation of fractional Brownian motion”
- June, 2004 SAMSI, Network Modeling for the Internet, Closing Workshop, “Wavelet-based synthesis of the Rosenblatt process” and “Identification of periodic and cyclic fractional stable motions”
- May, 2004 Vanderbilt University, Nashville, Second International Conference on Computational Harmonic Analysis, “Wavelet-based simulation of fractional Brownian motion revisited”
- May, 2004 University of Georgia, Athens, Fifth Biennial IISA International Conference on Statistics, Probability and Related Areas, “Stable Stationary Processes Related to Periodic and Cyclic Flows”
- April, 2004 University of Arkansas, Fayetteville, Conference on Recent Developments in Applied Harmonic Analysis: Multiscale Geometric Analysis, “Wavelet-based simulation of fractional Brownian motion revisited”
- October, 2003 University of Lisbon, Portugal, Department of Statistics and Operations Research, “The structure of stable self-similar processes with stationary increments”
- April, 2003 North Carolina State University, Mathematics Department, “Stable self-similar processes with stationary increments”
- April, 2003 University of North Carolina at Chapel Hill, Statistics Department, “Wavelet decompositions and their use in simulation of self-similar processes”
- November, 2002 University of North Carolina at Chapel Hill, Teletraffic Group Meeting, “Wavelet-based estimation of parameters in scaling processes”

**Invited Talks**

- June, 2006 The 9th International Vilnius Conference on Probability Theory and Mathematical Statistics, Vilnius, Lithuania, session on “Stable processes”
- April, 2005 Workshop on Heavy Tails and Long Range Dependence, Cornell University
- August, 2002 The 24th European Meeting of Statisticians, Prague, Czech Republic, session on “Lévy and self-similar processes”
- October, 2001 Mathematics Research Institute, Oberwolfach, Germany, workshop on “Stable laws, processes and applications”

### **Invited visits**

- May, 2006            Physics Laboratory, ENS Lyon, France, CNRS invited researcher
- May, 2005            Department of Mathematics and Statistics, University of Helsinki, Finland, Fractional May 2005

### **Referee for**

The Annals of Probability, The Annals of Applied Probability, Bernoulli, Journal of Financial Econometrics, Journal of Multivariate Analysis, Journal of Theoretical Probability, Probability Theory and Related Fields, Rocky Mountain Journal of Mathematics, Signal Processing, Stochastic Models, Stochastic Processes and Their Applications, Statistics and Probability Letters, Statistica Sinica

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