

## ERKAN NANE

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### EDUCATION

- May 2006 : **Ph.D. in Mathematics**, Purdue University, West Lafayette  
Advisor : Rodrigo Bañuelos  
**Thesis title:** Iterated Brownian motion: Lifetime Asymptotics and Isoperimetric-type Inequalities
- June 2000 : **Masters in Mathematics**, Boğaziçi University, Istanbul, Turkey
- June 1998 : **BS. in Mathematics**, Boğaziçi University, Istanbul, Turkey

### RESEARCH INTERESTS

- Probability and its applications to harmonic analysis, partial differential equations, spectral theory and geometry.
- Fractional diffusions and iterated processes: Path properties, exit times, local times, Hausdorff dimension results, and connection to partial differential equations.
- Stochastic processes: Iterated Brownian motion, composition of symmetric stable Lévy processes, self-similar processes, Lévy processes.

### RESEARCH PAPERS

- *Iterated Brownian motion in parabola-shaped domains*, *Potential Anal.* 24 (2006), no. 2, 105–123.
- *Iterated Brownian motion in bounded domains in  $\mathbb{R}^n$* , *Stochastic Process. Appl.* 116 (2006), no. 6, 905–916.
- *Laws of the iterated logarithm for  $\alpha$ -time Brownian motion*, *Electron. J. Probab.* 11 (2006), no. 18, 434–459 (electronic).
- *Lifetime asymptotics of iterated Brownian motion in  $\mathbb{R}^n$* , *ESAIM Probab. Stat.* 11 (2007), 147–160 (electronic).
- *Isoperimetric-type inequalities for iterated Brownian motion in  $\mathbb{R}^n$* , *Statistics & Probability Letters*, 78 (2008), 90–95.
- *Higher order PDE's and iterated processes*, *Trans. Amer. Math. Soc.* 360 (2008), 2681–2692.
- *Symmetric  $\alpha$ -stable subordinators and Cauchy problems: IJPAM (International Journal of Pure and Applied Mathematics) Volume 42 no.2 (2008)*, 217–225.
- *Brownian subordinators and fractional Cauchy problems: (Joint with Boris Baeumer and Mark M. Meerschaert)*, *Trans. Amer. Math. Soc.* (to appear).
- *Large deviations for local time fractional Brownian motion and applications: (Joint with Mark M. Meerschaert and Yimin Xiao)*, *J. Math. Anal. Appl.* (2008), doi: 10.1016/j.jmaa.2008.05.087.
- *Fractional Cauchy problems on bounded domains: (Joint with M.M. Meerschaert and P. Vel-laisamy)*, Submitted (February 2008). Can be found at <http://arxiv.org/abs/0802.0673>.
- *Laws of the iterated logarithm for a class of iterated processes*, Submitted (June 2008). WWW: [arxiv.org/abs/0808.3126](http://arxiv.org/abs/0808.3126).
- *Local times of multidimensional  $\alpha$ -time fractional Brownian motion: (Joint with Yimin Xiao)*, In Preparation.

## PROFESSIONAL EXPERIENCE

- 2006- : **Visiting Assistant Professor**(Post-doc), Department of Statistics and Probability, Michigan State University
- 2000-2006 : **Teaching Assistant** in Department of Mathematics, Purdue University
- 1998-2000 : **Teaching Assistant** in Department of Mathematics, Boğaziçi University, Istanbul

## COURSES TAUGHT

- **Michigan State University** (2006-2008) :
  - Probability and Statistics for Engineering (STT351)(Fall 06, Spring 07, Summer 07): Calculus based statistics course
  - Statistics I (STT421) (Spring 07, Summer 07, Fall 07 ): Statistics course without Calculus
  - Introduction to Probability and Statistics (STT430) (Spring 08)
  - Probability and Statistics I: Probability (STT441) (Fall 06, Spring 07)
  - Theory of Probability and Statistics I (STT861) (Fall 07): Graduate level Probability course
- **Purdue University** (2000-2006) :
  - Algebra and Trigonometry (MA 153)(Fall 05): Basic algebra and trigonometry for freshmen.
  - Real Analysis (MA 598R), (Summer 03): Qualifier preparation course for graduate students.
- **Other** : Developed and taught Mathcounts and Olympiad preparation courses for middle and high school students for Purdue University Math and Science Initiative (2004-2005)

## COURSES ASSISTED(as TA/Grader)

- **Undergraduate Courses:** Calculus (I, II, III), Linear Algebra, Functional Analysis, Real Analysis
- **Graduate Courses:** Real-Complex Analysis, Linear Algebra, Advanced Topics in Analysis

## TALKS

- *Subordinated processes and Cauchy problems*, Probability Seminar, Department of mathematics, University of Illinois, Urbana-Champaign, April 2008.
- *Iterated Brownian motion and a related class of processes*. Department of Mathematics Colloquium, University of Oregon, Eugene, Oregon, February 2008.
- *Iterated Brownian motion and a related class of processes*. Department of Mathematics Colloquium, Auburn University, Alabama, February 2008.
- *Iterated Brownian motion and a related class of processes*. Department of Mathematics and Statistics Colloquium, American University, Washington, DC, February 2008.
- *Iterated Brownian motion and a related class of processes*. Statistics Colloquium, Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, January 2008.
- *Symmetric  $\alpha$ -stable subordinators and Cauchy problems*. Fourth International Conference of Applied Mathematics and Computing, (Plovdiv, Bulgaria, August 12 - 18, 2007) (30-min lecture)
- *Symmetric  $\alpha$ -stable subordinators and Cauchy problems*. Department of Statistics and Probability Seminar, Michigan State University, March 2007. (two-hour lecture)
- *Iterated Brownian motion: lifetime asymptotics and isoperimetric-type inequalities*. Department of Statistics and Probability Colloquium, Michigan State University, September 2006.
- *Iterated Brownian motion in open sets in  $\mathbb{R}^n$* . Probability seminar, Department of Mathematics, Purdue University, October 2004.

## MEETINGS ATTENDED

- Twenty-Ninth Midwest Probability Colloquium, Northwestern University, October 2007
- Fourth International Conference of Applied Mathematics and Computing, (Plovdiv, Bulgaria, August 2007)
- AMS Regional Meeting, at Bloomington, IN, April 2003

## **AWARDS**

- NSF research assistant, Purdue University: Summer 2005, Spring 2005, Spring 2003, Fall 2002, Summer 2002
- Purdue Research Foundation Fellowship, Purdue University, Summer 2004
- Michigan State University Travel support(Summer 2007)

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

*American Mathematical Society (AMS)*

## **REVIEWER**

*Mathematical Reviews, Statistics & Probability Letters*

## **COMPUTER SKILLS**

- Programming Languages : Pascal
- Technical Software Packages: Minitab, Maple, Mathlab

## **REFERENCES**

Professor Rodrigo Bãnuelos, Department of Mathematics, Purdue University.

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Professor Davar Khoshnevisan, Department of Mathematics, University of Utah.

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Professor Dante DeBlassie, Department of Mathematics, Texas A&M University.

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Professor Mark M. Meerschaert, Department of Statistics and Probability, Michigan State University.

mcubed@stt.msu.edu. Phone: (517)432-7097

Professor Yimin Xiao (teaching), Department of Statistics and Probability, Michigan State University.

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