

ERKAN NANE

Department of Mathematics and Statistics
Auburn university
221 Parker Hall
Auburn, AL 36849

Office: (334) 844 6595
Fax: (334) 844 6555
nane@auburn.edu
<http://www.auburn.edu/~ezn0001>

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: Journal publications

- (1) *Space-time duality for fractional diffusion: (Joint with Boris Baeumer and M.M. Meerschaert).* **Journal of Applied Probability**, (To appear September 2009).
- (2) *Laws of the iterated logarithm for a class of iterated processes,* **Statistics & Probability Letters. vol. 79 (2009), 1744-1751.**
- (3) *Fractional Cauchy problems on bounded domains: (Joint with M.M. Meerschaert and P. Vel-laisamy),* **The Annals of Probability. vol. 37 (2009), 979-1007.**
- (4) *Correlated continuous time random walks, (Joint with M.M. Meerschaert and Yimin Xiao),* **Statistics & Probability Letters. vol. 79 (2009), 1194-1202.**
- (5) *Brownian subordinators and fractional Cauchy problems: (Joint with Boris Baeumer and Mark M. Meerschaert),* **Transactions of American Mathematical Society. vol. 361 (2009), 3915-3930.**
- (6) *Isoperimetric-type inequalities for iterated Brownian motion in \mathbb{R}^n ,* **Statistics & Probability Letters. vol. 78 (2008), 90-95.**
- (7) *Higher order PDE's and iterated processes,* **Transactions of American Mathematical Society. vol. 360 (2008), 2681-2692.**
- (8) *Symmetric α -stable subordinators and Cauchy problems: IJPAM (International Journal of Pure and Applied Mathematics). vol. 42 no.2 (2008), 217-225.*
- (9) *Large deviations for local time fractional Brownian motion and applications: (Joint with M.M. Meerschaert and Yimin Xiao),* **Journal of Mathematical Analysis and Applications. vol. 346 (2008), 432-445.**
- (10) *Lifetime asymptotics of iterated Brownian motion in \mathbb{R}^n ,* **ESAIM: Probability and Statistics. vol. 11 (2007), 147-160 (electronic).**
- (11) *Laws of the iterated logarithm for α -time Brownian motion,* **Electronic Journal of Probability. vol. 11 (2006), no. 18, 434-459 (electronic).**
- (12) *Iterated Brownian motion in bounded domains in \mathbb{R}^n ,* **Stochastic Process and their Applications. vol. 116 (2006), no. 6, 905-916.**
- (13) *Iterated Brownian motion in parabola-shaped domains,* **Potential Analysis. vol. 24 (2006), no. 2, 105-123.**

RESEARCH PAPERS: preprints

- (1) *A Strong Law of Large Numbers with Applications to Self-Similar Stable Processes: (Joint with Yimin Xiao and Aklilu Zeleke), Submitted (October 2008).*
- (2) *Higher order Cauchy problems on bounded domains, Submitted (September 2008).*
- (3) *Local times of multidimensional α -time fractional Brownian motion: (Joint with Yimin Xiao and Dongsheng Wu), Submitted. (November 2009)*

Discoveries

- (1) *Members Discoveries: Fractional Cauchy Problems. (page 5 at Url:<http://bulletin.imstat.org/pdf/38/6>) IMS bulletin paper on our paper "Fractional Cauchy problems on bounded domains: (Joint with M.M. Meerschaert and P. Vellaisamy), The Annals of Probability vol. 37 (2009), 979-1007." By Mark M. Meerschaert.*

PROFESSIONAL EXPERIENCE

- 2008- : **Assistant Professor**, Department of Mathematics and Statistics, Auburn University
2006-2008 : **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

- **Auburn University**
 - Probability and Statistics I (STAT 3600)(Fall 08, Spring 09)
 - Probability and Stochastic Processes II (MATH 6680)(Spring 09)
- **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) (Summer 08)
 - Probability and Statistics I: Probability (STT441) (Fall 06, Spring 07, Spring 2008)
 - 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

- Fractional Cauchy problems. Gaussian Analysis & SPDEs, AMS southeastern sectional meeting. University of Alabama in Huntsville, October 2008.
- *Subordinated processes and Cauchy problems.* Malliavin Calculus & Appl. Regional CBMS/NSF conference, Kent State University, OHIO, August 6-12, 2008.
- *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 α -stable subordinators and Cauchy problems*. Fourth International Conference of Applied Mathematics and Computing, (Plovdiv, Bulgaria, August 12 - 18, 2007) (30-min lecture)
- *Symmetric α -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

- Dora Aksoy Award of Boğaziçi University, Istanbul, Turkey. Given to the best graduating Master student of the Department of Mathematics. 2000.
- 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), Institute of Mathematical Statistics (IMS)

REVIEWER

Mathematical Reviews, Statistics & Probability Letters, Journal of the Franklin Institute, Electronic Journal of Probability, Journal of Theoretical Probability, Journal of Physics A: Mathematical and Theoretical, Mathematical Methods in the Applied Sciences.

COMPUTER SKILLS

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